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HOME Computing WEEKLY

EXCLUSIVE!

Prestel hacked open

Prestel has admitted that it is possible for unauthorised individuals to 'eavesdrop' on users whilst they are logged on to the system. One of ASP's regular contributors has discovered how to gain this information due to a problem in the operating practices of British Telecom.

Using a Commodore computer and a modem he has been able to watch people using their building society pages and logging on to the system. This means he could change the passwords of authorised users, making it impossible for them to use their own numbers to gain access in the future.

This type of unauthorised access to supposedly secure databases has been much reported in recent weeks, but has always been strenuously denied by Prestel, who even went to the extent of barring one of its information providers from the system until Timefame withdrew allegations of illegal access.

The term given to the use of modems in this way is 'hacking' and there are a number of groups who spend a great deal of time trying to crack the codes that allow such access.

Prestel is sensitive in a number of ways. It has influential users, including one inside Buckingham Palace, and a number of closed areas which hold confidential information such as details of building society and bank accounts. Anyone watching such pages can gain a great deal of information which could be of commercial or even private interest.

Our contributor is a responsible individual and he immediately reported his actions to Prestel. He is discussing with them the details and debating how security can be increased. He will be reporting on his actions in the next issue of Your Commodore magazine.

A spokesman for Prestel was unable to comment on these specific allegations, but said

Continued on page 5

Eagle-eyed? Win two new games in our £1400

HEWSON CONSULTANTS

competition

Save the world with your BBC

Commodore INPUTs tamed at last

New! Spectrum Ghostbusters reviewed

ARCADE ADVENTURE
With
TECHNICIAN TED

HEATHROW INTERNATIONAL
AIR TRAFFIC CONTROL
ATC

GHOSTBUSTERS

Mice in the house – Penman for the BBC

Blast off for adventure on Zarkon with the Amstrad CPC464

NEW
SURVIVOR
AMSTRAD

ANIROG

SURVIVOR Search the haunted rooms of Deadstone Abbey for the untold treasures left from years gone by However as you help Angus around the ancient building beware of the evil spirits who will chase Angus wherever he goes All he has to defend himself is his trusty gun and porcupine bombs Luckily for Angus there are various objects lying around the Abbey such as ammunition money bags, and bottles of life giving elixir There are 1008 various rooms all presented in remarkably clear and colourful graphics with beautifully smooth scrolling screens. Ahead lies a terrifying challenge for Angus and its up to you to help him Are you the sole survivor!

AMSTRAD £7.95

HOUSE OF USHER Enter the House of Usher at your own risk as you may never leave again However once inside there is a choice of nine rooms to select. Behind each door is a totally different action packed arcade game each of which are certain to strain your nerves to the limit If you manage to get through these nine rooms another two secret rooms (x and y) will appear but beware the evil powers of the House of Usher

AMSTRAD £7.95

FLIGHT PATH Flight Path is without doubt the best flight simulator on the C/16 and Amstrad The many elaborate features include, Altometer flaps, directional headings crosswinds fires, ground warning lights and reverse thrust to name but a few Also included are smooth graphics as you take off, cruise over mountains, and land once again.

AMSTRAD £6.95

3D TIME TREK As sole survivor of the planet 'Corillian' your quest is one of anger and revenge The starship you are flying is full of the latest inboard computers and extra powerful sensors Also included are full 3D graphics to add unbelievable realism to this fantastic journey through time itself, and beyond.

AMSTRAD £7.95

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AMSTRAD £7.95

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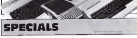
HOME COMPUTING
WEEKLY
BRITAIN'S BRIGHTEST



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Think before you move

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Lend me your ears — you'll be surprised at your micro's capabilities

Oric/Atmos . . . .
Double treat — not one but two games

Software houses: send your software for review to the editorial office at the address below. Contact us for competitions and other promotions, too

Readers: we welcome your programs, articles and tips

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NOTE WE HAVE MOVED TO NEW PREMISES

From front page

'We're always getting claims that individuals have hacked the system. Most of these claims are nonsense and some are even silly.' He quoted one example of an individual who claimed to have been hacking when all he had done was pass through a gateway

The gateway system allows Prestel users to go on to other machines holding information for public or private access The Nottingham Building Society is one such gateway which allows members of the society to use and view their accounts from home

John Webster, NBS managing director, told HCW 'I don't believe it! Nobody has hacked into our system It took us two years to build and has now had two years of live use We have tried every hack possible and with 10 levels of security, only four or five of which are obvious to the user, nobody — but nobody — can hack us '

Mr Webster regards hacking as a healthy development 'They're just individuals trying to beat the system and find a freak hole in the security We are not against them in any way and would give them a welcome if they can demonstrate their methods and facilities to me Many of the claims sound dramatic but come to nothing when we ask for a demonstration '

Some of these stories have been proved correct, as a Prestel spokesman admitted. Recent stories of a mole within Prestel have been proved false. however, and the company making the allegations, Time Fare International, has published a full withdrawal of its claims

All claims of hacking and other unauthorised access to the system are fully and speedily investigated and very few are proved correct, but all are taken very seriously indeed We would be very interested to hear from any of our readers who have gained access to such databases and will pass any contacts on to the companies involved

It's all Greek

If you're well up on Greek mythology you'll stand a better chance at success with Ocean's Gift from the Gods, on the Spectrum You star as Orestes, and your responsibility is to avenge your late father, King Agamemnon Your task takes you to the labyrinthines below the palace, in which you must find the Euclidian shapes

Your strength is sapped with every action you perform, and, as always in strategy/adventure games, there is both hazard and help at hand

Gift from the Gods costs £9 95

Ocean, 6 Centrel St, Manchester M2 5NS

Save your money

The Panda 20/64 cassette interface is a new low-cost way of saving Commodore programs to an ordinary domestic cassette recorder. At £17 99, it means you can save money on the price of a Commodore recorder by using an ordinary cassette recorder which you may already have

The Panda 20/64 can be used with both Commodore 64 and VIC-20. It features a phase switch which enables it to cope with different types of recorder and tape quality

Pact International, PO Box 50, Peterborough

Break the bank

Micro Power looks set to break the bank with its new game for the BBC micro To be launched on 15th February, Castle Quest is a combination of arcade, adventure and strategy game types

So confident is the company that players will find the puzzles difficult, that it will pay £1 to anyone who cracks the game within three months of purchase That isn't the end of the drain on Micro Power's bank account, however

There will be a national high score competition for all those who have claimed their pound bet This is the point where the arcade game comes into its own When you have actually cracked the puzzles you have to go on to the highest score that you can

The score you get is based on two elements You get a number of points for each puzzle and location which you complete satisfactorily and this can be increased by cutting down unnecessary walking around the castle This means that the player who can find the shortest route gets the highest time bonus.

Four players who have claimed high scores will be invited to Leeds for a play off game at Micro Power HQ, the winner carrying off £500 of computer equipment and software

The game is played on a large graphic screen and involves the manipulation of a small quester complete with backpack The screen scrolls in four directions and is very smooth indeed in the horizontal The castle itself is filled with creatures of all types from red monkeys (*another name for a red herring? Ed*) to castle guards

The puzzles are all quite logical and involve such things as getting out of prison before you starve You move around and use objects in the castle to solve each problem We have to admit that even on the short preview we had there were a number of people in this office who were hooked on the game

Look out for a full review in a future issue of HCW

Micro Power, Northwood Hse, Sheepscar, Leeds

Thrills and spills

Indiana Jones has now made it to the small screen — Indiana Jones in the Lost Kingdom is the latest adventure for the C64 from US Gold Mindscape, the American originator, has licensed the game to US Gold and it goes on sale in the UK for £9 95

There are six perils — and no rule book Indy's arch enemy Ivar Reiss is also after the treasure Options include playing against the computer, or two players assuming the roles of Indiana and Ivar

Each of six rooms contain a puzzle which must be solved before you can find your way out A precious artefact is what you're after

F-15 Strike Eagle is a second new release from US Gold This one is on licence from Microprose, and costs £14 95 on disc and cassette for the C64 Included in the price is a comprehensive flight manual

F-15 Strike Eagle is also available on Atari disc and cassette while a Spectrum version is scheduled for the early part of this year

There are four skill levels in this jet-fighter simulation, which features scrolling 3D graphics as seven missions are recreated

US Gold, Unit 10 The Parkway Ind Centre, Heneage St, Birmingham B7 4LY

BET YOU £1
YOU CAN'T
CRACK IT.
CASTLE QUEST

Coin it in at Micro Power

Profits to feed the hungry

Cheetahsoft's Perils of Bear George now out on the Commodore as well as the Spectrum, is the source of a potentially large donation to the Ethiopian famine appeal

Profits from both versions will be handed over to the Save the Children fund, destined to aid starving Ethiopians Howard Jacobson, Cheetahsoft's managing director, said 'We felt that more money could be raised through our latest game than by any other method Profits will be sent directly to those in need, and the more copies sold, the greater the contribution '

The Spectrum version has been on the market for three months, while the Commodore version is a recent release A spokesman for Cheetahsoft said 'Cheetahsoft sells each cassette for £2 or £2 50 for each game We will be donating all of our share of the profit

'As yet, we're not sure if the shops will be coming in with us on this one, as they did with Band Aid's record, but it's up to them

'If the game sells well, we could raise £30,000 for the famine appeal', he continued

Cheetahsoft, 24 Ray Street, London EC1R 3DJ

Rights change hands

The rights to Currah Computer Components have passed to dk'troniks, after months of negotiation with the receiver Currah experienced financial difficulties before Christmas and the receiver was called in Then dk'tronics set up a deal whereby all intellectual property rights were passed over, and now dk'tronics is manufacturing Currah products in its own factory.

Neil Rawlinson, financial director, said We've now acquired exclusive marketing rights to the entire Currah product range for a substantial sum This includes a major new product in the hi tech field, which will be developed by dk'tronics over a broad range of home computers

'One person has already been appointed from the Currah team and there is a possibility of other members of staff joining us '

Mr Rawlinson commented on the statement which Welwyn Electronics had sent out, claiming that Welwyn was manufacturing and selling Currah units 'Welwyn has the right to sell the product under a negotiation set up last Spring At dk'tronics we are looking at long-term plans for Currah products — we will be supporting the chain stores and servicing orders immediately We have had a long-term admiration of Currah and we have the facilities here at dk'tronics to go into manufacturing the units quickly.'

'It's part of our deal to reassure Currah consumers All our orders will be honoured and fulfilled immediately

dk'tronics, Unit 6, Shire Hill Ind Est, Saffron Walden, Essex CN11 3AX

All at sea?

Shoot the Rapids, from New Generation, is a canoe simulation for the C64 Movement is provided with the joystick, so that realism is maintained To dip the paddle to the right you move the joystick right, and if you keep moving the joystick in one direction, your canoe will turn full circle, as it does in real life

There are five levels of difficulty and the current becomes fiercer as you progress through the game New Generation claims the graphics are superb and the music excellent Price £7 95

New Generation, The Brooklands, 15 Sunnybank, Lyncombe Vale, Bath BA2 4NA

Front line heads range

New releases are few and far between in the post Christmas period, but Interceptor Micros is defying trends to release five new games

Front Line, for the C64, stars you at the controls of the Death Tank Interceptor Its armour plating can withstand direct hits and repair itself — good job too, since you must go behind enemy lines and regain control of your supply dumps You have no back-up support and the enemy is superior both on land and in the air Price £7

Bigtop Barney, also for the C64, features you as Barney the clown, whose job description specifies that he must complete four death-defying acts to win the audience applause High wire, monocycle, strongman or freeing the lion cub from its cage — these are your choices, and they're by no means as easy as they may seem Price £7.

Caverns of Sillach, £7 on the C64, is an arcade space adventure, while Halaga, on the Spectrum (£5 50) is described as a fast-moving space fantasy While on an exploratory mission swarms of insect-like creatures descend on you in a fury Your anti-matter plasma gun is your only weapon

Villain, £6 on the VIC-20 with 8K or 16K expansion, involves you in a life of crime PC Plodd dogs your footsteps in this arcade game

Interceptor Micros, Lindon Hse, The Green, Tadley, Hants

Skramble for more machines

Anirog is extending its Commodore range with Skramble on the C16 and Plus/4 The storyline goes You are fighting through six sectors, continuously destroying fuel dumps, to get to the enemy command base on planet earth

Rockets, UFOs, meteors and fireballs beset you in the first three stages, while in the next three you manoeuvre through a city, maze and command base

Anirog claims smoothly scrolling screens are a star feature, as well as uniquely brilliant colours

Also scheduled for conversion to these machines Moon Buggy, Petch, 3D Time Trek, Flight Path 737, Zodiac and Las Vegas, at £6 95 each

Anirog, Victoria Ind Park, Victoria Rd, Dartford, Kent DA1 5AJ

....and more for the C16

And Melbourne House has also brought out software for the C16, with two compilation tapes taken from Commodore 16 Games Book Commodore 16 Games Packs I and II cost £ 95 each, and contain 15 games on each cassette

Both arcade and strategy games are included

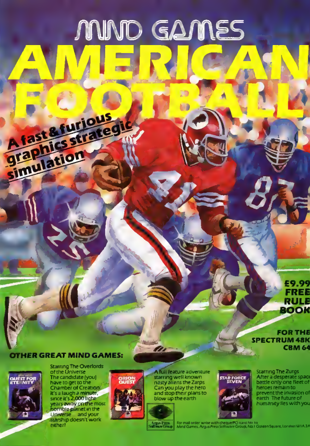
Melbourne Hse, Castle Yard Hse, Castle Yard, Richmond, Surrey TW10 6TF

Good on you

The correct route for Wilf in our 'Kokotoni Wilf' competition was A Here are the names of the 10 first prize winners and the 110 second prize winners:

First E Marsden Poynton, L E Lundy, London, I Murphy, Liverpool M Sharpe, Sheffield, C Murphin Stoke on Trent, C Scott, Hull, W J Callis Duston E A Tomlinson, Havant, A Fairfield, Stoke on Trent, M Nadier, Newcastle upon Tyne

Second M M Rothwell, St Helens, Z Rahman, Nottingham, R A Houlton St Helens P S Barham, Dudley, D Penaluna Newcastle upon Tyne R Tipton Leicester, B Hobson Huddersfield H Davies Coventry D Putter, Rochford C Jennings, Bushey, M Luckins, Gillingham C Bidmead, Gosport M Payne Taunton A C Williamson, Brighton, G Wright London, D Edwards Manchester, D Roebuck, Lymington R T Goodwin, Nuneaton, D Ramsay, Bradford N Scott Bingley M Young Liddington A J M Taylor, Brandon, J Alba, London M R Arnot Chester D Kelly Shewsbury, D C Causton Wellingborough, M Long, Norwich M Graham, Congleton A Wallis Birmingham, M Aldorino, Gibraltar D J Ascough Leeds, P Steele Seed Warrington S A Matthews Darlington, R Henthorn, Newport, S Mace, Enfield, D Yorde Wembley A J Moorhouse, St Helens R C Hewlis, Rotherham S Lewis, Ilford, S Gillespie Scotland D Taylor, Huddersfield R Bedford, Brandon P Christie G J Wesley Southampton G N Lacey, Tunbridge Wells, D McQuaid Bristol, A J Swann Pontyclun A Key, Chesterfield E Mawson Leeds, A Clark Eastbourne K Giscombe, Arlesey A Bundy, Eastleigh N Bell, Glasgow A Paginton, S Wales J Gould, Wolverhampton D C Terry, Preston, M S Buckley Huddersfield E Brocklesby Grimsby, A Broome Dudley R Banks, London R Burns Oldham S Butler, Milton Keynes A Thorpe Seaham A Bussell Beaconsfield, G Officer Hartlepool H Giles, Micheldean R Lee Derby, J Shine Morden P Warham Gerrards Cross D M Shannon, Northern Ireland, S Davidson, Bedworth, C Hodgson, Upholland, S Chalmers Aberdeen E E Dixperkin, Trowbridge, D E Nicholls, London, S Conway, Ireland, T Murphy, London A May Scotland, K Mourrey, Cleveland, R Van Hoesen Belgium M McNally Reading M J Davis, Poole, A Everitt, Bicester S Rutherford, Ayr J D Tradwell Halifax C Adams Coventry D J King Hull S Prasad, Wirral, J G Yates, Bolton, J Gibbs Cannock C White, Leeds, A Bourall Chigwell, G & D Peterson Liverpool, D Nayak Manchester, D Ayres, Stoke on Trent T Raven Llanelli S Bennett West Germany J Barlow Hoddesdon C Carr Ferrybridge, A Martin Belgium J Graves Gosport G J Knightley, Eastbourne, K Blackwell Romford, R V Baldwin, London, D Fowler Roslin R Kumar, Manchester F H Reed, Hoddesdon I Gardner, Barnsley, P J Rice, Camberley, T H Banks Scotland W Duff Scotland M Bedford Bradford



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CBM 64

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Argus Press Software Group

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TOP 20 Compiled by Gallup Software

HCW is proud to present the Gallup software chart — the one to believe in. Gallup's reputation as a credible market research company is second to none. This software study is carried out nationwide in both independent and chain stores, on a weekly basis. This is chart to watch out for — the one you know you can trust.

Week Ending January 8, 1985

LAST WEEK	MOVE	THIS WEEK	TITLE	PUBLISHER	SPECTRUM	CBM 64	BBC	ELECTRON	VIC 20	AMSTRAD	ATARI	OTHERS
1	●	1	Ghostbusters	Activision	●	●						
2	●	2	Deley Thompson's Decathlon	Ocean	●	●						
3	●	3	Match Day	Ocean	●							
9	▲	4	Air Wolf	Elite	●							
10	▲	5	Starstrike 3D	Realtime	●							
6	●	6	Booty	Firebird	●	●						
08	▲	7	Manic Miner	Software Projects	●	●	●			●		●
23	▲	8	Select 1	Computer Records	●	●						
13	▲	9	Hunchback II	Ocean	●	●						
05	▼	10	Hunchback	Ocean	●	●	●	●	●			
15	▲	11	Football Manager	Addictive	●	●	●			●		●
11	▼	12	Beach-Head	US Gold	●	●						
07	▼	13	Knight Lore	Ultimate	●							
4	▼	14	Elite	Acornsoft			●	●				
14	▼	15	Skooldaze	Microsphere	●	●	●					
22	▲	16	American Football	Mind Games	●	●						
17	●	17	Steve Davis Snooker	CDS	●					●		
24	▲	18	Monty Mole Wanted	Gremlin	●	●						
28	▲	19	Flight Path 737	Anirog	●	●						●
27	▲	20	Raid over Moscow	US Gold	●							

SPECTRUM Top Ten

1	**Ghostbusters**	Activision
2	**Match Day**	Ocean
3	**Deley Thompson's Decathlon**	Ocean
4	**Airwolf**	Elite
5	**Starstrike 3D**	Realtime
6	**Booty**	Firebird
7	**Knight Lore**	Ultimate
8	**Skooldaze**	Microsphere
9	**Select 1**	Computer Records
10	**Hunchback 2**	Ocean

BBC Top Ten

1	**Elite**	Acornsoft
2	**Sabre Wulf**	Ultimate
3	**Manic Miner**	Software Projects
4	**Scrabble**	Leisure Genius
5	**Hunchback**	Ocean
6	**Frak!**	Aardvark
7	**Jetpac**	Ultimate
8	**Snooker**	Visions
9	**Grand Prix 3D**	Software Invasion
10	**Blockbusters**	Macsen

COMMODORE Top Ten

1	**Ghostbusters**	Activision
2	**Daley Thompson's Decathlon**	Ocean
3	**Raid over Moscow**	US Gold
4	**Bruce Lee**	US Gold
5	**Select 1**	Computer Records
6	**International Football**	Commodore
7	**Hunchback II**	Ocean
8	**Staff of Karnath**	Ultimate
9	**Beach Head**	US Gold
10	**Zaxxon**	US Gold

Compiled by Gallup for the industry's weekly trade magazine Computer and Software Retailing
For details contact John Sorrenti, Computer and Software Retailing, No. 1 Golden Square London W1R 3AB 01 437 0626

Mission to Zarkon

You're a guerilla fighter on the planet Zarkon. You're defenceless and without ID, but your mission is of paramount importance.

By David Pope

Having landed at Zarkon spaceport your objective is to deliver plans of the coming assault on the evil Federation to the Rebels who are somewhere in the city of Zarkon on the planet Zark

There are many hazards (you have no weapon and no identity card) and strange situations — some fatal — others with a touch of humour.

If you manage to deliver the plans you must then get back to your space-craft and leave

You may come across certain locations where there are clues (in the form of messages) or clues in what you find at a particular location.

A variety of two-word inputs such as LOOK UP or READ MESSAGE will help you with the task at hand

You have 125 moves to complete the mission before the Federation troops finally catch up with you.

How it works

10-50	author's titles (REM)
60-90	set mode and colours
100-130	initialise game
140-140	call subroutine for main titles
170-200	read data
220-340	press space bar to start
250 910	main loop
280-340	set some of the traps
350-360	give location i.e. you are
370-430	give directions i.e. you can go —
440-470	give items i.e. you can see
480-500	controls number of moves left
510-520	substrings for input
530-910	input and action taken
920-950	success, titles
960-2140	subroutines for input
2150-2210	spring some of the traps
2220-2310	opening titles
2320-2460	location data
2470-2490	item data
2500-2540	lose titles
2550-2590	input, another game?

Variables

aa%-az%, ff%, p%, n%, l, j	flags
ds(x)	description of location
m%(x,y)	contains map
f%	position on map
l(x)	description of items
h%(x,l)	pointer to items
z$	words understood
z%	pointer to word
l$	second word input
v$	input sentence
w$	holds items picked up
r$, s$, t$	substrings for input
t	items in the drop/get routine

Words used

GO, NORTH, SOUTH, EAST, WEST, KILL, SHOOT, FIRE, HIT, ATTACK, RING, FLY READ, LOOK, SEARCH, GET, GRAB, TAKE, DROP LEAVE, SQUASH, PRAY, HELP, UNLOCK, CLIMB, GO UP, GO DOWN, GO IN, GO OUT, FU**, PI**, SIT, INVENTORY (INV)

Hints on conversion

1. **LOCATE** places the cursor at x,y co-ordinates on screen
2. **INK 1** = text colour **INK 0** — paper (screen) colour **INKS 2 and 3** = 2 other colours (all chosen from palette)
3. **PAPER** and **PEN** select colours (from inks) for screen and text respectively
4. **WHILE. WEND** used for the main loop and can be replaced by **REPEAT UNTIL m%** = 10 or a conditional **GOTO**
5. **LOWERS** converts upper case inputs into lower case allowing input to be in either upper or lower or a mix
6. **MODE 1** is a 40 column mode with four colours available
7. **ENV** is a volume envelope **ENT** is a tone envelope

```
10 REM**********************************
20 REM****     MISSION TO ZARKON     ****
30 REM****   (c) DAVID JOHN POPE     ****
40 REM**********************************
50
60 REM** SET MODE AND COLOURS ********
70 INK 0,0:INK 1,24:INK 2,3:INK 3,26
80 MODE 1:PAPER 0:PEN 1
```

```
90
100 REM** INITIALISE GAME *************
110 DIM m%(55,4),d$(55),i$(30),w$(4),h%(30,1),z$(3
0),z%(30)
120 f%=1:aa%=0:ab%=0:ac%=0:ad%=0:ae%=0:af%=0:ag%=0
:ah%=0:ai%=0:aj%=0:ak%=0:al%=0:am%=0:an%=0:ao%=0:a
p%=0:aq%=0:ar%=0:as%=0:at%=0:au%=0:av%=0:aw%=0:ax%
=0:ay%=0:az%=0
130
140 REM** OPENING TITLES **************
150 GOSUB 2220
160
170 REM** READ DATA *******************
180 FOR x=1 TO 55:READ d$(x)
190 FOR y=1 TO 4:READ m%(x,y):NEXT y,x
200 FOR x=1 TO 13:READ i$(x),h%(x,1),z$(x):z%(x)=x
:NEXT
210
220 REM** THE GAME BEGINS HERE ********
230 LOCATE 8,23:PAPER 2:PEN 1:PRINT"Press <SPACE B
AR> to start":PAPER 0:PEN 1
240 a$=INKEY$:IF a$<>" " THEN 240
250 ***********************************
260 REM** MAIN LOOP STARTS HERE *******
270 CLS:WHILE m%<>10
280 REM** SET TRAPS ******************
290 IF (f%=7 OR f%=12 OR f%=14) AND ac%=0 THEN az%
=az%+1:IF az%=1 THEN PRINT"You have no card!! You
manage to hide  and the guards pass you by . ....
...You might not be so lucky next time!!":FOR g=1
TO 10:ENT 1,20,-1,5:SOUND 1,150,100,15,1,1:NEXT
300 IF az%=2 THEN GOTO 2170
310 IF f%=15 AND af%=1 THEN ay%=ay%+1:IF ay%=1 THE
N PRINT"Luckily the sparks don't ignite the fuel c
apsule!!!........ .....................You migh
t not be so lucky next time!!":FOR g=1 TO 10:ENT 1
,2,9,45:SOUND 1,150,90,15,1,1:NEXT
320 IF ay%=2 THEN GOTO 2160
330 IF f%=41 THEN GOSUB 2180
340 IF (f%=55 OR f%=38) AND at%=0 THEN GOTO 2190
350 ***********************************
360 PAPER 2:PEN 1:PRINT:PRINT"You are :-":PAPER 1:
PEN 0:PRINT d$(f%)
370 a$=""
380 IF m%(f%,1)>0 THEN a$="West"
390 IF m%(f%,2)>0 AND LEN(a$)>0 THEN a$=a$+",North
" ELSE IF m%(f%,2)>0 THEN a$="North"
400 IF m%(f%,3)>0 AND LEN(a$)>0 THEN a$=a$+",South
" ELSE IF m%(f%,3)>0 THEN a$="South"
410 IF m%(f%,4)>0 AND LEN(a$)>0 THEN a$=a$+",East"
 ELSE IF m%(f%,4)>0 THEN a$="East"
420 IF LEN(a$)=0 THEN a$="Think about it...!"
430 PRINT:PAPER 2:PEN 1:PRINT"You can go :-":PAPER
 1:PEN 0:PRINT a$
440 u=0:FOR x=1 TO 13: ff%=0: IF h%(x,1)=f% THEN f
f%=1: IF ff%=1 THEN 460
450 NEXT x:GOTO 480
460 IF u=0 THEN PAPER 2:PEN 1:PRINT:PRINT"You can
see :-":PAPER 1:PEN 0
470 PRINT i$(x): u=u+1:GOTO 450
480 PRINT:PAPER 2:PEN 3:PRINT:PRINT"You have";125-
q%;"moves left":PAPER 0:PEN 1
490 q%=q%+1
500 IF q%>124 THEN GOTO 2500
510 PRINT:PAPER 2:PEN 3.PRINT"What will you do now
";INPUT v$:PAPER 0:PEN 1
520 CLS
530 v$=LOWER$(v$):s$=LEFT$(v$,2):r$=LEFT$(v$,3):t$
=LEFT$(v$,4):p=FF(" ")
540 ***********************************
550 REM** GET OBJECTS ****************
560 j=0:IF r$="get" OR r$="gra" OR r$="tak" THEN j
=1:GOSUB 960
570 REM** DROP OBJECTS ***************
```

```
580 IF r$="dro" OR r$="lea" OR r$="put" THEN j=1:G
OSUB 1320
590 ***********************************
600 IF r$="unl" THEN j=1:GOSUB 1460
610 IF r$="cli" THEN j=1:GOSUB 1520
620 IF r$="rin" THEN j=1:GOSUB 1620
630 IF r$="in" OR t$="go i" THEN j=1:GOSUB 1650
640 IF r$="out" OR t$="go o" THEN j=1:GOSUB 1740
650 IF r$="dow" OR t$="go d" THEN j=1:GOSUB 1790
660 IF r$="up" OR t$="go u" THEN j=1:GOSUB 1850
670 IF r$="rea" THEN j=1:GOSUB 1910
680 IF r$="inv" THEN j=1:GOSUB 1960
690 IF r$="fly" THEN j=1:GOSUB 2060
700 IF r$="squ" THEN j=1:GOSUB 2030
710 IF r$="sit" THEN j=1:GOSUB 2110
720 ***********************************
730 REM** PLAYERS MOVE ****************
740 IF (s$="w" OR t$="go w") AND m%(f%,1)>0 THEN f
%=m%(f%,1):j=1
750 IF (s$="n" OR t$="go n") AND m%(f%,2)>0 THEN f
%=m%(f%,2):j=1
760 IF (s$="s" OR t$="go s") AND m%(f%,3)>0 THEN f
%=m%(f%,3):j=1
770 IF (s$="e" OR t$="go e") AND m%(f%,4)>0 THEN f
%=m%(f%,4):j=1
780 IF j=0 AND (s$="w" OR s$="n" OR s$="s" OR s$="
e") THEN j=1:PRINT"I can t go that way'"
790 ***********************************
800 IF r$="hel" THEN j=1:PRINT"I want to.. but you
 re on your own..."
810 IF r$="loo" AND f%=55 THEN j=1:PRINT"You look
up and a giant bat drops one   in your eye..''":EN
T 1,100,1,5:SOUND 1,50,500,15,1,1:SOUND 1,400,20,1
5,1,1,21
820 IF r$="exa" OR r$="loo" OR r$="sea"THEN j=1:PR
INT"You see nothing else of any help.."
830 IF s$="pi" OR s$="fu" OR s$="bu" THEN j=1:PRIN
T"That s charming..I must say..''"
840 IF r$="att" OR r$="hit" THEN aa%=aa%+1:j=1:IF
aa%=1 THEN PRINT"If you try that again you might w
ell be sorry..''"
850 IF aa%>1 THEN GOTO 2200
860 IF (t$="shoo" OR r$="kil" OR r$="fir") AND wg%
=0 THEN PRINT"You have no weapon..''":j=1
870 IF (t$="shoo" OR r$="kil" OR r$="fir") AND wg%
=1 THEN ss%=ss%+1:IF ss%=1 THEN PRINT"Your laser m
alfunctions..It is far too  dangerous to use again
...''":j=1
880 IF ss%>1 THEN GOTO 2210
890 IF r$="pra" THEN j=1:FOR g=1 TO 1000:NEXT:PRIN
T"I hope you feel better now"
900 IF j=0 THEN PRINT"I m sorry..I don t understan
d '"
910 NEND
920 CLS:PAPER 2:PEN 1:LOCATE 13,4:PRINT"YOU DID IT
 ''"
930 PAPER 0:PEN 1:PRINT:PRINT:PRINT"     Before the
 Federation Sky Hawks          have time to take ac
tion you take        off from Zarkon and back to yo
ur        home planet to carry on the fight."

940 PRINT:PRINT"       The rebel forces on Zarkon
             are now ready to take on the
  Federation and begin the               final ch
apter in the battle            to free the galaxy
"
950 GOTO 2550
960 ***********************************
970 REM** GET OBJECTS *****************
980 GOSUB 1220
990 IF l%<>1 THEN PRINT"I don t see a ";l$:RETURN
1000 u%=0
1010 FOR x=1 TO 13
1020 IF h%(x,1)=f% AND h%(z%(t),1)=f% THEN u%=1
1030 NEXT
1040 IF u%=0 THEN PRINT "It s not here'":RETURN
1050 IF t=1 THEN ah%=1 ELSE IF t=2 THEN af%=1 ELSE
 IF t=3 THEN ag%=1
1060 REM IF t=2 THEN af%=1
1070 REM IF t=3 THEN ag%=1
1080 IF t=4 AND ag%=1 THEN as%=1 ELSE IF t=4 THEN
PRINT"Not until you deliver the plans''":RETURN
1090 IF t=5 THEN PRINT"This is no time to get drun
k''":RETURN
1100 IF t=6 THEN PRINT"It s too heavy''":RETURN
1110 IF t=7 THEN at%=1 ELSE IF t=8 THEN ak%=1 ELSE
 IF t=9 THEN ar%=1
1120 REM IF t=8 THEN ak%=1
1130 REM IF t=9 THEN ar%=1
```

```
1140 IF t=10 THEN PRINT"What a wally you are''":RE
TURN
1150 IF t=11 THEN PRINT"The Zarkonian,realising th
at you want it.......throws it to you ...''''" :FO
R g=1 TO 5000:NEXT:GOTO 2500
1160 IF t=12 THEN PRINT"As he grabs me I hear my r
ibs cracking  and I wonder why I do such silly thi
ngs.....''''":FOR g=1 TO 5000:NEXT:GOTO 2500
1170 IF t=13 THEN ac%=1
1180 u%=0:FOR x=1 TO 3:IF w$(x)="" THEN w$(x)=i$(z
%(t)):u%=1:x=9
1190 NEXT x
1200 IF u%=0 THEN PRINT"Don t be greedy'' Only 3 i
tems ''":RETURN
1210 h%(z%(t),1)=0:RETURN
1220 ***********************************
1230 REM** TWO WORD INPUT *************
1240 l$="":FOR x=1 TO LEN(v$)
1250 IF MID$(v$,x,1)=" " THEN l$=RIGHT$(v$,(LEN(v$
)-x)):x=x+80
1260 NEXT
1270 t=0:l%=0:IF LEN(l$)<2 THEN RETURN
1280 FOR x=1 TO 13
1290 IF LEFT$(z$(x),LEN(l$))=l$ THEN l%=1:t=x
1300 NEXT
1310 RETURN
1320 ***********************************
1330 REM** DROP OBJECTS ****************
1340 GOSUB 1220
1350 IF l%<>1 THEN PRINT"I don t have a ";l$:RETUR
N
1360 u%=0
1370 FOR x=1 TO 3:IF w$(x)=i$(z%(t)) THEN w$(x)=""
:u%=1
1380 NEXT
1390 IF u%<>1 THEN PRINT"I haven t got it'":RETURN
1400 h%(z%(t),1)=f%
1410 IF t=1 AND f%=46 THEN PRINT"You have done wel
l.Find the key and return home'":BORDER 9,6:FOR x=
1 TO 10:ENT 1,10,1,10:SOUND 1,300,100,15,1,1,2:NEX
T:BORDER 1:i$(1)="":ah%=0:ag%=1:m%(10,2)=0:d$(10)=
"outside the terminal which is now sealedoff'"
1420 IF t=1 AND f%=46 THEN d$(51)="inside a bar.."
:d$(46)="standing by an empty table...":RETURN
1430 IF t=1 THEN ah%=0 ELSE IF t=2 THEN af%=0 ELSE
 IF t=3 THEN ag%=0 ELSE IF t=4 THEN as%=0
1440 IF t=5 THEN ai%=0 ELSE IF t=7 THEN at%=0 ELSE
 IF t=8 THEN ak%=0 ELSE IF t=9 THEN ar%=0 ELSE IF
t=13 THEN ac%=0
1450 RETURN
1460
1470 REM** UNLOCK DOOR ****************
1480 IF ak%<>1 THEN PRINT"How about finding a key
first''".RETURN
1490 IF f%=4 OR f%=9 OR f%=48 OR f%=54 THEN PRINT"
Oh dear'The key doesn t fit ''":RETURN
1500 IF f%<>8 THEN PRINT"Don t be such a wally ''
":RETURN
1510 PRINT"I turn the key ...and the gate opens..'
'":d$(8)="outside the perimeter fence. by an open
gate":m%(8,2)=5:d$(5)="inside the perimeter fence
 there is an open gate":m%(5,3)=8:RETURN
1520 ***********************************
1530 REM** CLIMB ***********************
1540 IF f%=1 THEN f%=2:PRINT"O.K.":RETURN
1550 IF f%=2 THEN f%=1:PRINT"O.K.":RETURN
1560 IF f%=45 THEN PRINT"O.K. But take it slowly '
"
1570 IF f%=45 THEN f%=50:RETURN
1580 IF f%=50 THEN PRINT"O.K. I hope you know what
 you re doing'"
1590 IF f%=50 THEN f%=45:RETURN
1600 IF f%<>45 OR f%<>50 THEN PRINT"Are you nuts o
r something??":RETURN
1610 ***********************************
1620 REM** RING BELL *******************
1630 IF f%<>49 THEN PRINT"what s with the ringing
you fruitcake'  Have you seen a doctor recently ??
":RETURN
1640 IF f%=49 THEN PRINT"As you ring the bell some
thing wakes up and  rings  your neck ''":FOR g=1 T
O 5000:NEXT:GOTO 2500
1650 ***********************************
1660 REM** GO IN ***********************
1670 IF f%=4 THEN PRINT"You didn t see the other g
uard behind   the door ......he reaches for his la
ser...................................''''":FOR g=1
TO 5000:NEXT:GOTO 2500
1680 IF f%=25 OR f%=21 THEN f%=20:PRINT"O.K. You a
```

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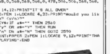
sked for it'                    why did the Zarkon h
edgehog cross the   busy road?...(to see his flat-
mate''')":RETURN
1690 IF f%=23 THEN f%=28:PRINT"If you insist":RETU
RN
1700 IF f%=34 THEN f%=40:PRINT"Going up''":ENT 1,5
0,-1,5:SOUND 1,100,250,15,1,1:RETURN
1710 IF f%=40 THEN f%=34:PRINT"Going down''":ENT 1
,50,1,5:SOUND 1,50,250,15,1,1:RETURN
1720 IF f%=31 THEN PRINT"If you really want to...j
ust go West'":RETURN
1730 PRINT"That s just not possible here":RETURN
1740  ************************************
1750 REM** GO OUT ***********************
1760 IF f%=20 THEN PRINT"Do it yourself meatball '
 ":RETURN
1770 IF f%=28 THEN f%=23:PRINT"Had enough shopping
? O.K.":RETURN
1780 PRINT"No need to do that here":RETURN
1790  ************************************
1800 REM** GO DOWN **********************
1810 IF f%=54 THEN f%=55:PRINT"I hope you know wha
t you re doing'":RETURN
1820 IF f%=32 THEN f%=38:PRINT"Be careful":RETURN
1830 IF f%=34 OR f%=40 OR f%=45 OR f%=30 OR f%=55
OR f%=38 THEN PRINT"Try again bird brain''":RETURN
1840 PRINT"That's just not possible here":RETURN
1850  ************************************
1860 REM** GO UP ************************
1870 IF f%=55 THEN f%=54:PRINT"OK good.I could use
 a drink":RETURN
1880 IF f%=38 THEN f%=32:PRINT"I m glad to get out
 of there'":RETURN
1890 IF f%=34 OR f%=40 OR f%=45 OR f%=50 OR f%=32
OR f%=54 THEN PRINT"Try again bird brain''":RETURN
1900 PRINT"That s just not possible here":RETURN
1910 REM** READ *************************
1920 IF f%=44 THEN PRINT"It says....................
.........................Kilroy was here....":RETURN
1930 IF ma%=1 THEN PRINT"Zarkonian troops have sea
led off the    Space-port Terminal building''You m
ust  get in by a gate in the perimeter fence......
Find the key..deep in the passage............ .Goo
d luck":RETURN
1940 IF f%=51 THEN PRINT"Make plans to be on your
guard.....":RETURN
1950 PRINT"There is nothing to read...yet":RETURN
1960  ************************************
1970 REM** INVENTORY ********************
1980 PAPER 2:PEN 3:PRINT"You have :-":PAPER 0:PEN
1:p%=0
1990 FOR x=1 TO 3:IF w$(x)<>"" THEN PRINT w$(x):p%
=1
2000 NEXT:IF p%=0 THEN PRINT"Nothing yet'"
2010 PRINT
2020 RETURN
2030 REM** SQUASH ***********************
2040 IF f%=42 THEN PRINT"A bit drastic.....but eff
ective..''''":d$(42)="in the passage..something cr
unches underyour boot..'' :d$(36)="deep in the pas
sage..There is a small ofdead cockroach in the air
..''":m%(42,4)=43:RETURN
2050 IF f%<>42 THEN PRINT"There is nothing to squa
sh...here'":RETURN
2060 REM** FLY **************************
2070 IF f%=1 AND mg%<>1 THEN PRINT"It is imperativ
e that you deliver the   plans before you leave'''
":RETURN
2080 IF af%<>1 AND f%=1 THEN PRINT"You are out of
fuel''":RETURN
2090 IF f%<>1 THEN PRINT"Unless you ve grown wings
..forget it ''":RETURN
2100 m%=10:BORDER 0,2:INK 0,2,3:FOR g=1 TO 15:ENV
1,4,30,19:ENT 1,9,49,5,1,-10,26:SOUND 1,140,68,15,
1,1:NEXT:BORDER 1:INK 0,0:RETURN
2110 REM** SIT **************************
2120 IF f%=46 AND mg%=0 THEN PRINT"There is no tim
e..just leave the plans.'":RETURN
2130 IF f%=46 AND ag%=1 THEN PRINT"There is no tim
e'' You only have";125-q%,"moves left'''":RETURN
2140 PRINT"Don t be so lazy''":RETURN
2150  ************************************
2160 PRINT"You freeze to the spot as you watch a
 spark land on the fuel capsule'' There  is a flas
h and .............why have you sprouted wings..'''
":ENV 1,11,-1,25:ENT 1,9,49,5,9,-10,15:SOUND 1,100
,255,15,1,1,12:FOR g=1 TO 5000:NEXT:GOTO 2500
2170 PRINT"You don t have any I.D. and the guards
 have refused to take your library card' Someone s
houts an order and................ they take aim''
'":FOR g=1 TO 15:ENV 1,21,-5,4:ENT 1:SOUND 1,162,8
2,15,1,1,2):NEXT:GOTO 2500

2180 PRINT"You are set upon by a gang of Zarkonian
 midgets...you have no money so they dumpyou in an
other part of town..''":FOR g=1 TO 5000:NEXT:BORDE
R 6,9:FOR g=1 TO 20:ENV 1,4,12,11:ENT 1,5,12,8:SOU
ND 1,165,40,15,1,1:NEXT:BORDER 1:CLS:f%=13:RETURN
2190 PRINT"It s so dark down here that you trip on
 the steps and something snaps..............(I thi
nk it s your neck..''''":FOR g=1 TO 5000:NEXT:GOTO
 2500
2200 PRINT"In the fight that follows you receive
 a fatal blow..''''":FOR g=1 TO 5000:NEXT:GOTO 250
0
2210 PRINT"The laser gun explodes in a mass of
 pretty colours...unfortunately you are  no longer
 around to appreciate them..''":ENV 1,11,-1,25:SOU
ND 1,100,255,15,1,1,12:FOR g=1 TO 5000:NEXT:GOTO 2
500
2220 CLS:LOCATE 11,2:PAPER 2:PEN 1:PRINT" MISSION
TO ZARKON
2230 PAPER 0:PEN 3:PRINT:PRINT "          You have j
ust arrived on the          planet Zark and your mi
ssion is         to deliver safely to the rebel
        forces the plans for the final           ass
ault on the evil Federation."
2240 PRINT:PRINT"             You have landed your Viper
             jet at the space-port in Zarkon
  city.You have no weapons and no          I.D.Card
.The city holds many               surprises for the
unprepared'"
2250 PRINT:PRINT"          Rebel forces have been ac
tive          in Zarkon and as a result the
  troops of the Federation have            stepped
up their searches and              show little mercy
to suspects'"
2260 PRINT:PAPER 2:PEN 1:LOCATE 3,23:PRINT' Press
the <space bar> to continue ":PAPER 0:PEN 3
2270 a$=INKEY$:IF a$<>" " THEN 2270
2280 CLS:LOCATE 11,2:PAPER 2:PEN 1:PRINT" MISSION
TO ZARKON ":PAPER 0:PEN 3:
2290 PRINT:PRINT"           Instructions in the form
 of          two words such as LOOK UP or
  FLY JET will help you complete              the task
 at hand."
2300 PRINT:PRINT"      When you think you have foun
d           the Rebels then you must leave
  the plans with them.......                There ar
e many hazards for                the unwary...be ca
reful......"
2310 PRINT:PRINT"          After delivering the pla
ns..        get out as fast as you can.
  The security forces are onto              you and
you only have 125 moves           before they captur
e you..''''           .......Good Luck......'
2320 DATA sitting in your Viper space craft..,0,0,
0,0,standing by your Viper spacecraft by an empty
hangar,0,0,6,3,near a small building...the Zarkon
flag flys above it..,2,0,7,4,outside a guard house
.A guard is asleep but for how long...?,3,0,0,5
2330 DATA by the perimeter fence.There is a locked
 gate...,4,0,0,0,near the main terminal building b
y the  perimeter fence,0,2,0,7,in the main termina
l building.Zarkon    Security Troops are checking
I.D.Cards.. ,6,3,10,0
2340 DATA standing outside the perimeter fence....
there is a gate but it is locked..,0,0,12,0,by the
 perimeter fence.There is a gate  but it is locked
.0,0,0,10,outside the terminal building.Somewhere
near.... a building is burning,9,7,15,11
2350 DATA near the terminal..,10,0,16,12,near the p
erimeter fence..Zarkon troops are checking I D.Car
ds,11,8,0,13,near the edge of town..,12,0,0,14,on t
he main route out of town.Zarkon     troops have se
t up a roadblock and are  checking I.D.Cards,13,0,
17,0
2360 DATA by the Zarkon Military H.Q. which is on
fire.Rebel forces have set off a bomb,0,10,19,16,b
y an ambushed Zarkon troop carrier.The troops are
dead and their uniforms have been stolen by Rebels
.??''',15,11,0,0,near a Zarkon roadblock..'',0,14,
22,0
2370 DATA near the Military H.Q..,0,0,0,19,near the
 town center..,18,15,23,0,inside a Zarkon joke sho
p,0,0,25,21,outside a joke shop..near an alley...0
```

AMSTRAD CPC464 PROGRAM

```
,0,0,22,in a strange part of town,21,17,26,0,outsi
de a DApt.store on the main street of Zenkon,0,19,
0,24
2380 DATA on the main street opposite a dark alley
,23,0,29,25,on the main street outside a Zarkon jo
ke shop,24,0,0,0,in an alley.It is cold and damp,0
,22,32,0,in the hat dept.,0,0,33,28,in the store.I
t looks empty,27,0,34,0
2390 DATA in the alley.It's called...............
.......Muggers Paradise....'',0,24,35,0,in the sho
p.It's not that strange after all'',0,0,0,31,outsi
de a very strange shop,30,0,0,32,in the alley.Ther
e are some steps going down into blackness,31,26,0
,0
2400 DATA in the shoe dept,0,27,0,0,standing by an
 open lift,0,28,0,0,in the alley...it's too quiet,
0,29,41,0,deep in the passage..you sense something
moving ahead of you...'''' ,0,0,42,37,in the windi
ng passage...there are many jewels........,36,0,0,
38
2410 DATA in a dark passage.Steps lead up to .....
...You can't see clearly..,37,0,44,0,in the food d
ept,0,0,45,40,on the top floor next to an open lif
t,39,0,0,0,at the end of the alley...You are adopt
 to be attacked''',0,35,0,0
2420 DATA in the passage.A tiny Zarkenian
cockroach blocks your path..''',0,36,0,0,in the pa
ssage.A breeze disturbs the    damp  air,42,0,48,0
2430 DATA in the passage.You see some writing on
the wall,0,38,49,0,in the toy dept.A rope hangs ou
t of a   window,0,39,0,0,by a table where strange
looking Zarkon guards are sitting,0,0,51,47,standi
ng by a table of rough looking    aliens,46,0,52,0
2440 DATA at the end of the passage.In the gloom
you see a door,0,43,0,0,in the passage.There is a
dead body on  the floor.You  hear something snorin
g'',0,44,55,0,in an alley at the back of a store a
nd  next to a bar.A rope hangs down,0,0,0,51
2450 DATA inside the bar.Someone slips you a note,
50,46,0,52,standing at the bar.A drunken Zarkonian
 looks menacingly at you'',51,47,0,53,at the end o
f the bar by an open door,52,0,0,54
2460 DATA in an alley outside a bar.There are some
steps leading down into..................it's too d
ark to see..,53,0,0,0,in a dark passage at the bot
tom of some steps..someone has drawn an arrow on t
hewall..it points to the ceiling....,0,47,0,0
2470 DATA some plans,1,plans,a fuel capsule,9,fuel
,a laser gun,16,gun,a secret message,22,message,a
helpless drunk,24,drunk,a large diamond,37,diamond
,a torch (lit),40,torch,a key,43,key,a large ruby,
44,ruby,a huge bell,49,bell
2480 DATA a bloodstained knife,52,knife,a drunken
zarkenian,53,zarkonian,an identity card,5,card
2490 RETURN
2500 CLS:READ note:IF note=999 THEN GOTO 2540
2510 SOUND 1,note,60,15,1
2520 LOCATE 14,12:PRINT"IT'S ALL OVER":GOTO 2500
2530 DATA 568,0,568,568,568,0,478,506,506,568,568,
602,568,999
2540 LOCATE 14,12:PRINT"IT'S ALL OVER"
2550 PAPER 2:PEN 1:LOCATE 4,23:PRINT"Would you lik
e another go? <y/n>?"
2560 a$=INKEY$:IF a$="" THEN 2560
2570 IF a$="y" OR a$="Y" THEN RUN
2580 IF a$="n" OR a$="N" THEN GOTO 2590
2590 CLS:PRINT:PAPER 2:PEN 1:LOCATE 9,12:PRINT"THA
NK YOU FOR PLAYING":END
```



GOOD BYTE

SPECTRUM

GAME	RRP	OUR PRICE
DALEY THOMPSON	6 90	4 95
BEACHHEAD	7 95	5 95
WHITE LIGHTNING	14 95	10 50
SHERLOCK HOLMES	14 95	9 95
KNIGHTS LORE	9 95	6 95
UNDERWURLDE	9 95	6 95
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PSYTRON	7 95	5 95
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T L L	5 95	4 50
TRASHMAN	5 95	4 50
CLASSIC ADVENTURE	6 95	5 25
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FULL THROTTLE	6 95	5 75
MATCHPOINT	7 95	5 75
AVALON	7 95	5 25
ENDURO	7 95	5 50
SCRABBLE	15 95	4 75
EDDIE KIDD JUMP	7 95	4 95
COMBAT LYNX	7 95	5 25
DARK STAR	7 95	4 95
JET SET WILLY	5 95	4 50
STAR STRIKE	5 95	4 50
TRAVEL WITH TRASHMAN	5 95	4 50
BACK PACKERS GUIDE TO	7 50	4 95
QUASIMODOS REV	6 90	4 90
TIR NA NOG	9 95	6 95
AIRWOLF	6 90	5 25
MATCH DAY	7 95	5 70
PYJAMARAMA	6 95	5 25
BLUE MAX	7 95	5 95
MACHINE LIGHTNING	19 95	14 95
MONTY IS INNOCENT	6 95	5 50
TECHNICIAN TED	6 95	5 50
ZAXXON	7 95	5 95
*VU CALC	9 95	4 00
*VU FILE	9 95	4 00
*JACK AND BEANSTALK	5 95	2 75
GREAT SPACE RACE	14 95	11 25
POTTY PIGEON	6 95	5 95
PITFALL II	7 95	5 95
VALKYRIE 17	9 95	5 95
RAM TURBO INTERFACE		18 00
MATCH POINT	7 95	6 50
GIFT OF THE GODS	9 95	7 95
TRIPODS	11 50	7 50
BOULDER DASH	7 95	5 95
SPIDERMAN	9 95	6 95
GHOSTBUSTERS	9 95	7 50

COMMODORE 64

GAME	RRP	OUR PRICE
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STRIP POKER	8 95	6 85
PSYTRON 64	7 95	5 25
TALES OF ARABIAN NIGHTS	7 00	3 75
BEACHEAD	9 95	7 50
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NATO COMMANDER	9 95	7 50
SPITFIRE ACE	9 95	7 50
MY CHESS II	11 95	8 25
BATTLE FOR MIDWAY	8 95	4 95
QUASIMODOS REVENGE	7 90	5 50
ZAXXON	9 95	7 50
SUMMER GAMES	14 95	10 50
SHERLOCK	14 95	10 50
PSI WARRIOR	9 95	5 99
RAID OVER MOSCOW	9 95	7 50
STAFF OF KARNATH	9 95	7 25
BLUE MAX	9 95	7 50
TAPPER	9 95	7 50
SELECT 1	12 49	8 50
SPY VS SPY	9 95	7 50
BOULDER DASH	8 95	7 25
HOBBIT	14 95	9 95
DALEY THOMPSONS DECATH	7 90	5 25
KONG S REVENGE	7 90	5 80
FIGHTER PILOT	8 95	7 50
BREAKFEVER	7 00	4 95
COMBAT LYNX	8 95	6 95
WHITE LIGHTNING	19 95	15 95
SPIDERMAN	9 95	6 95
CAD CAM WARRIOR	9 95	7 50
F15 STRIKE EAGLE	14 95	11 70
MOTOCROSS	7 95	5 90
SUICIDE STRIKE	7 95	5 90
SPY HUNTER	9 95	7 50
IMPOSSIBLE MISSION	8 95	6 75
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SHOOT THE RAPIDS	7 95	5 95

COMMODORE 16

GAME	RRP	OUR PRICE
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GAMES PACK 2	5 95	4 95
OLYMPIAD	5 95	4 95
SKRABLE	6 95	4 95
FLIGHTPATH 737	6 95	4 95
ZODIAC	6 95	4 95
MOON BUGGY	6 95	4 95
OUT ON A LIMB	6 95	4 95
TOM THUMB	6 95	4 95
GALAXIAN	6 95	4 95
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P073

American imports

Here's a page of reviews that gives you a taste of American life, from Ghostbusting to breakdancing

Boilerhouse 48K Spectrum £6.95

Front Runner, 620 Western Av, London W3 0TU

I can manage to do two things at once without too much difficulty, three at a push — but four is too many I'm afraid In this game you are faced with four boiler valves to watch You must dash to whichever is closest to blowing and release the pressure then move on to the next most critical and so on

My biggest problem was that I could not manage to release the pressure in the top two valves This involves climbing a ladder I pushed the ladder to what appeared to be the correct position climbed it then pressed the key which released the lower valve nothing happened I tried various ladder positions with little success, before deciding that the game was unplayable

The game has joystick and keyboard options and there are nine skill levels which determine the speed steam builds up at The graphics are attractive and there's a pleasant little tune, but that's no compensation since the game does not appear to work as it should Even if it had worked I suspect I should have found it boring **M N**

instructions	75%
playability	10%
graphics	70%
value for money	10%

★

Ghostbusters 48K Spectrum £9.99

Activision

This game has caught the imagination of Commodore users but will it translate to the Spectrum? Well, it does and I am happy to report that Sinclair users can join in the fun as well

You are about to start a Ghostbusting franchise and the bank loans you £10 000 to get going You have to decide which items of equipment are essential to getting the money you require to make a success of it

There are ghost traps vacuums and bait and an incredibly expensive containment system When you have made your choices it's into the streets to get the ghosts

The map screen shows the buildings to be visited and you plan your route before getting in the car If you touch any passing ghosts you sweep them up in your vacuum On arrival you have to deploy the trap and guide the beams so the nasty little creature is captured or he 'slimes' you

The graphics are good on all screens, the map being particularly well designed and colourful There are plenty of playing options so almost any joystick will work Bound to be a winner **D C**

instructions	100%
playability	100%
graphics	100%
value for money	100%

★ ★ ★ ★ ★

Breakdance CBM 64 + Disc drive + Joystick £8.95

Ashbrook Hse 3 5 Rathbone Pl, London W1

If you've watched breakdancing and wanted to try it but know your body won't stand it this program could be the answer to your prayers

It consists of four different games and a final Grand Loop which combines all the games into one competition

In the first one you take part in a one to one dance contest You use the joystick to repeat your opponent's moves Very tricky

The second is similar to the first except that you're battling against increasing numbers of dancers who edge you towards a river

The third is different This time you must watch a dance sequence and decide in which order the still pictures should be to reproduce the routine It can be difficult to decide the correct order and you're working against the clock In the final game you choreograph a routine using the set of movements provided

Even though the graphics and sound were up to Epyx's high standard this game became boring after a while **M W**

instructions	90%
ease of use	75%
graphics	90%
value for money	70%

★ ★ ★

Henry's House CBM 64 £8.95

English Box 43 Manchester M60 3AD

Little Henry's bodyguard deserves the sack — this royal household is full of dangers for such an inquisitive boy! Each of the eight rooms contains a large number of objects to collect and several others which prove lethal if touched Collecting one special object in each room reveals a key When this and all the other objects have been gathered Henry can make his way across the corridor to the next room

Playing the game requires careful timing, accurate positioning and luck It takes only a short time to discover the correct route around a room but longer to follow it without making mistakes It's all too easy to miss the [illegible] or to land under the bath tap just as it drips

The graphics are among the best I've seen, and you can admire them all straight away as the title sequence shows you each of the rooms — a nice touch even if it does lessen the incentive to complete each new room **M N**

instructions	85%
playability	90%
graphics	95%
value for money	85%

★ ★ ★ ★ ★

Styx Oric 1/ Atmos 48K £8.50

No Man's Land 110 bis av du General Leclerc 93500 Pantin, France

For those who enjoy the arcade game The Phoenix this clone will be a must for their Oric collection It combines impressive graphics, with fast action and excellent sound effects

There are four screens each presenting flying enemies with increasingly more rapid movement and danger They are eagles, goblins, and devil's eyes and you shoot these fast moving enemies from the skies They drop bombs and land mines The land mines add an extra level of danger They sink below the surface then move from side to side beneath your gun Not only do you have to watch the swirling mass of flying enemy above but also keep an eye on the position of the mines below And that's really difficult!

Overall it's a very easy game to play — just left right and fire buttons — so much happens on the screen that I was grateful for that I must admit that I didn't play this for too long it would have been very easy to have become addicted! **D N**

instructions	70%
playability	90%
graphics	90%
value for money	90%

★ ★ ★ ★ ★

Taming the BASIC INPUT command

David Brooks guides you through the hazards of BASIC

If you've every done even a little programming on your Commodore, you probably know that the BASIC INPUT command is the usual way of getting information from you to the computer through the keyboard Here's the simplest program I can think of which uses this command

```
10  INPUT "LAST NAME",N$
20  PRINT "YOUR LAST NAME IS ",N$
```

Type in this program and run it When the input message appears, followed by a question mark, type your last name and press the RETURN key (All the keyboard inputs requested in programs in this article should be followed by a RETURN unless noted otherwise) Your name will be printed on the screen following the message "YOUR LAST NAME IS"

This is, indeed, very simple Now I'm going to show that the INPUT command is full of surprises and traps for the unwary Change line 10 to read

```
10  "LAST NAME, FIRST NAME",N$
```

Run the program When the input message appears, type your last name, a comma, and your first name Now you should see the message "?EXTRA IGNORED" and your last name printed

It's little quirks like this which are frustrating for the beginner They make programs hard to use and will cause your friends to snicker at your "dumb" computer After all, you've asked it to accept a perfectly reasonable input and it has responded by sending back meaningless messages and misunderstanding what you intended

The problem is that the INPUT command interpress commas in a special way, as a "variable separator" which divides one input variable from another It thinks you're trying to give it more information than it is looking for, so it just ignores part of it Armed with this knowledge, we can achieve the result we want for last name, first name input

```
10  INPUT "LAST NAME, FIRST NAME",L$,F$
20  PRINT "YOUR NAME IS ",L$,", ",F$
```

Try it It works, but doesn't it seem like a lot of trouble? You might think of using some other punctuation to separate last and first names, even though commas are what you'd naturally use Try this

```
10 INPUT N$
30 PRINT N$
```

When you run the program and the "?" appears, type the following characters ABCD: EFGH When this is printed you'll see only ABCD Why? You're right, the INPUT command also interprets a colon as a variable separator There's really no good explanation for this, but that's the way it works A semicolon or a slash, on the other hand, will be accepted as part of a string variable You can verify this by typing ABCD,EFGH or ABCD/EFGH in response to the "?"

Here's one more example of a potential problem with INPUT:

```
10  INPUT "TYPE ANY NUMBER",N
20 PRINT N
```

Note that there are no "$" signs after the N this time When you run this program, it works fine if you type digits in response to the "?" sign (Don't forget the Return at the end) But, try typing a letter instead In that case you get the message "?REDO FROM START" and the input prompt is repeated This is the Commodore's rather obscure way of telling you that you've typed something it can't accept, in this case something other than a number

If your program asks for a number with a numerical variable like N instead of an alphanumeric character with a string variable like N$, the INPUT command will only accept numbers Note that if you've asked for a string variable you can respond with one or more digits, which will then be treated as alphnumeric information But it won't work the other way around!

There are more examples of what reasonable people might consider to be failings of the INPUT command. I don't have the space to go into all of them here It's too bad, because these problems make computers appear capricious and vindictive If you're going to do any but the simplest programming, and especially if your programs are going to be used by others, you really shouldn't use the INPUT command at all

The way around INPUT is to use GET This command accepts one character at a time from the keyboard Try this program:

```
10  PRINT "TYPE LAST NAME, FIRST NAME",
20 N$=""
30 GET $, if $ = "" THEN 30
30 IF Z$=CHR$(13) THEN 70
50 N$=N$+Z$  PRINT Z$,
60 GOTO 30
70 PRINT. PRINT N$
```

This may seem like a lot of trouble because you have to construct your own version of an input routine, but there are lots of advantages First, let's look at what each line does

Line 10: since there's no INPUT command with its optional prompting message, I've printed my own message telling you what to do Note that there's no "?" automatically printed after this message, because that comes from the INPUT command

line 20: defines a string variable with nothing in it (a null string)

line 30. GETs a character The computer just waits for you to do something (Note a Return character should not be typed after responding to a GET)

line 40: if the character is a RETURN (CHR$(13)) then go to line 70 and print the result

line 50. if Z$ isn't a RETURN, add (concatenate) it to N$ and print the character

line 60· goes back to the GET command

line 70: prints the results

When you run this program, you'll notice that there's no blinking cursor, but you can type your responses anyhow Here's one additional word of warning if you type a quote mark, your computer will lock up and you'll have to turn it off to regain control I'll show you how to overcome these two difficulties later

The basic advantage (and challenge) of this program is that GET doesn't try to interpret your responses like INPUT does You have an opportunity to look at each character as it comes from the keyboard, and with a little extra programming, you can respond to or ignore any character you like The program steps would be inserted between lines 30 and 40 Line 40 is one such programmed interpretation, as it tells the computer to recognise a Return as the end of your response to the input prompt message

As another example of controlling the response to a particular character, add this line

```
35  IF Z$="X" THEN 30
```

The result is that Xs entered from the keyboard are ignored

GET isn't bothered by commas, as you can see when you respond with your last name, a comma, and your first name. It doesn't mind colons, either, try ignoring the instructions and just typing ABCD EFGH

Now I want to show you a particular situation where carefully thought out keyboard input is important Suppose you're writing a menu-driven program which starts something like this

```
10 PRINT "MENU"
20 PRINT "FIRST OPTION"
30 PRINT "SECOND
  OPTION"
40 PRINT "THIRD OPTION"
50 PRINT "END PROGRAM"
```

If you want to select one of these options, you have to enter a digit between 1 and 4 and use the value to direct the program to the appropriate place. If you simply use INPUT to ask for an option number, there's no way to protect yourself against keyboard mistakes But it's possible to sort out all the inappropriate responses like this

```
60 PRINT "SELECT AN
  OPTION (1-4)"
70 GET Z$ IF Z$="" THEN
  70
80 Z=VAL(Z$)
90 IF Z>0 AND Z<5 THEN
  ON Z GOTO 100,200,300,
  400
95 PRINT "INPUT ERROR
  TRY AGAIN ..": GOTO 60
100 PRINT "PROCESS
  OPTION #1"
..
190 GOTO 10
200 PRINT "PROCESS
  OPTION #2"
...
290 GOTO 10
300 PRINT "PROCESS
  OPTION #3"
..
390 GOTO 10
500 PRINT "PROGRAM
  FINISHED"
```

If you try this program, you'll find that there are only two ways to terminate it: by pressing a digit from 1 to 4 (the proper response), or by pressing the RUN/STOP key. All other keyboard inputs are ignored. Note that a Return character should not be typed after responding to this GET

You could use INPUT instead of GET by replacing lines 60 and 70 with something like this

```
60 INPUT "WHICH OPTION
  ",Z$
```

I prefer to use GET because a RETURN is not needed

Note the use of the VAL function in line 80 It converts a string variable (Z$) to a numerical value for use in the ON...GOTO command in line 90 All non-numeric characters have a VAL of zero

Now, isn't this kind of performance what you'd really expect from a program? It's completely protected against input errors. You can even prevent the computer from accepting input errors. You can even prevent the computer from accepting the RUN/STOP key, as I'll show you later, but this is a pretty drastic step to take until you're sure your program is doing exactly what you want it to!

Solving your keyboard input problems

A CBM 64 program called KEYBOARD GET is shown in Listing 1 It consists of a short main program (lines 100-150) and a subroutine (lines 7000-7270). The subroutine can be incorporated into your own programs the main program is simply a demonstration of this subroutine When you type in the program, you can leave out all the REMs to speed up the operation, although the subroutine responds very promptly just as it is. Here's an explanation of what some of the lines do.

Line 130: prints a message which serves as the input prompt and calls a subroutine to replace INPUT

lines 7000-7010: POKE a zero to 808 to disable the RUN/STOP and RESTORE functions. Make sure you really want to do this, and remember to enable these functions before leaving the subroutine (see line 7180). The POKE to 650 gives character repeat capability to any key which is held down. This function is disabled in line 7170.

line 7020: initialises the input string I$ to a null value. CHR$(175) prints an underline that functions as a non-blinking 'cursor' during the keyboard entry process. CHR$(157) is a cursor-left (backspace) command

line 7040: responds to a Return or shifted Return character by ending the keyboard input

line 7050: assigns string variables to the function keys.

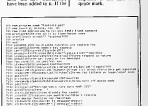
If you think you'll be using certain words or other character strings frequently in your keyboard input, you can store these strings so they can be entered into the input string variable with a single keystroke These strings are then concatenated to the input string that's being created. Processing these functions, beginning at line 7190, can cause a small but perceptible delay in keyboard response if you're a fast typist. If you don't think you'll use this part of the subroutine, just delete line 7050 or inactivate it with a REM at the beginning of the line

lines 7070-7080: respond to the INST/DEL key by treating it as a backspace key which removes characters previously entered in I$ You won't be able to backspace past the beginning of I$, i e when LEN(I$)=0

lines 7090-7100 this is the heart of the subroutine, as it defines which characters will be allowed in I$. Use the ASCII-to-character conversion tables in your user's manual as a guide Basically, I've allowed lowercase and uppercase letters and some other printable characters, but not graphics symbols. You can restrict the range of acceptable characters in any way you choose

line 7120: prints the current character(s) on the screen. Check the length I$ will have after the new character(s) have been added to it If the length will be more than 255, the subroutine truncates your input string at 255 characters. Note that this subroutine allows you to input strings of up to 255 characters directly from the keyboard, whereas the INPUT command is limited to 80 characters

line 7130 appends the new character(s) to I$. There's a trick to accepting a quote mark (CHR$(34) as a valid character. Once you print a quote, as may occur in line 7120, the Commodore system goes into the "quote mode;" with interesting results (You can try it for yourself by putting a REM in front of IF Z$=CHR$(34) .., but as I mentioned previously, you'll have to turn your CBM 64 off to get control of it again.) You have to fix this by turning off the quote mode with a POKE to 212 anytime your response to the GET is a quote mark.



Looping the loop on the Spectrum

David Nowotnik, HCW regular contributor, shows you how to loop the loop in machine code

Anyone with experience of BASIC programming will know the power and utility of FOR-NEXT loops — the ability to repeat many times over a similar sequence of operations within a few lines of program. Loops are important for the same reasons in machine code. Here are two ways of looping in Z80 machine code, with examples for the ZX Spectrum.

If you want a loop which is repeated no more than 256 times, then the Z80 command DJNZ is the one to use. DJNZ stands for Decrement B and Jump if Not Zero. This means that the B register is used as a loop counter. When the DJNZ instruction is encountered, the value in the B register is decremented (i.e. the value is reduced by one). If the new value is not zero, then the program jumps back to start of the loop. If it is zero, then the program continues with the instruction immediately following DJNZ.

DJNZ is a two-byte instruction: the first byte is the opcode, the second is the operand which defines the distance (in bytes) and direction of the jump in the program. With DJNZ you can jump forward or backwards in the program. The jump will be forward if the opcode has a value between 0 and 127. The distance of the jump, in bytes, will be the value of the opcode, you start counting from the address of the opcode immediately following DJNZ.

For operand values between 128 and 255, the jump is backwards, as required in a loop. The distance of the jump, in bytes, is calculated by 256-x, where x is the value of the operand.

To use DJNZ, the register B has to be loaded first with a number, which is the number of times you want to go round the loop. A simple assembly language example is shown in Table 1. Register B is LOADed with 64, and the register pair HL is loaded with the starting address of the Spectrum's attribute file. By using a loop, the first 64 bytes of the attribute file have 100 placed into them. Check that you can see how the operand to DJNZ is calculated in the example.

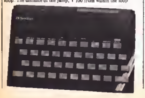
To try the example, type in the BASIC machine code loader in Table 1, SAVE it, then RUN it. Try changing the values underlined, and see the effect, this will help you understand how the routine works.

For loops repeated more than 256 times, a two-byte register has to be used as a loop counter. There is no single instruction to form a loop with a register pair, so a few lines of code are required to perform such a loop. Take a look at the example in Table 2.

The BC register pair is used as the loop counter, and this is LOADed with the value of the number of circuits of the loop which are required. The HL pair is again loaded with the start of the attribute file, and the attribute file is filled with the value 100 using LD (HL), 100 from within the loop.

To perform a large loop, the BC register is first decremented. This operation does not set the zero flag when BC is zero, so we need to perform another operation to check if BC holds the value zero. This is done by the sequence — LD A,B: OR C. This in effect carries out a logical OR operation on the values in the B and C registers. The result of this operation can only equal zero when B=0 and C=0; i.e. when BC holds the value zero. If BC is not zero, then the loop is repeated, otherwise, a RETurn to BASIC is performed.

The BASIC loader in Table 2 will allow you to try the example in the assembly language listing. Again, type it in, SAVE it and RUN it. Also, change the underlined numbers to observe the effect. But be careful as you could crash the computer if you use too big a number in your loop counter.



	Instruction	Byte values	Comments
	LD B,64	6 64	Set the loop counter
	LD HL 22528	33,0 88	Attribute file
LOOP	LD (HL),100	54 100	POKE HL 100
	INC HL	35	Next address
	DJNZ to LOOP	16 251	End of loop
	RET	201	RETurn to BASIC

```
10 CLEAR 29999
20 LET x=30000
30 READ a: IF a=-1 THEN GO TO 60
40 POKE x,a: LET x=x+1
50 GO TO 30
60 IF USR 30000 THEN
100 DATA 6,64,33,0,88,54,100
110 DATA 35,16,251,201,-1
```

	Instruction	Byte values	Comments
	LD BC 768	1 0 3	Set the loop counter
	LD HL,22528	33,0 88	Attribute file
LOOP	LD (HL) 100	54,100	POKE HL 100
	INC HL	35	Next address
	DEC BC	11	Decrement counter
	LD A C	121	Check if BC is equal
	OR B	176	to zero
	JR NZ to LOOP	32,248	LOOP if not, or
	RET	201	RETurn to BASIC

```
10 CLEAR 29999
20 LET x=30000
30 READ a: IF a=-1 THEN GO TO 60
40 POKE x,a: LET x=x+1
50 GO TO 30
60 IF USR 30000 THEN
100 DATA 1,0,3,33,0,88,54,100
110 DATA 35,11,121,176,32,248,201,-1
```

Up periscope!

In R Butcher's game you must gauge the speed and range of passing vessels in order to score accurate hits. Think before you move

The object is to sink as many ships as possible with the 50 torpedos. The screen consists of a periscope view, across which ships of varying tonnage, speed and range pass.

Whether a ship is hit or not depends on when the torpedos are fired in relation to speed and range.

There are three speeds and three ranges, giving nine different combinations, as well as random movement right to left and vice versa.

Any number of torpedos may be fired at one ship. To the right of the periscope view is an indicator panel which gives all necessary information.

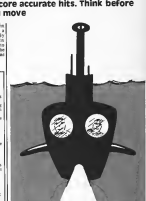
The size of the ships (in graphics) and the time they take to get across the screen are in proportion, which gives a realistic simulation. By changing the "2" PAUSES in lines 106, 109, 206, 209 to PAUSE 25 the game may be speeded up. Full instructions are in the program.

Variables

hi high score
torp torpedos remaining
ships ship used
sunk present score
ton tonnage of ship in view
col if col = 1 ship is hit, if col = 0 no hit
side whether ship passes L-R or R-L
speed at which ship travels
dist range of ship
kn displayed speed of ship
x horizontal position of ship
y$ end of play message
g$ another game prompt
o$ action stations message

How it works

1-4 set variables
5-6 check if end of game
7-8 sets and prints tonnage
10-16 determines which ship is shown
30-33 checks keyboard for firing
99-110 loop for moving ships L-R
199-211 loop for moving ships R-L
900-903 introduction tune
999-1029 title page
1030-1039 instruction page
4000-4006 end of game
4007-4019 end of play (morse code message)
5000-5002 large explosion
5004-5005 small explosion
5006-5007 new total sunk
6000-6004 prints torpedo tracks
6005-6007 erases torpedo tracks
6008 decreases torpedo count
6009-6044 checks for hit
7000-7950 draws periscope
8000-8040 prints sights
8499-8516 draws sea
9000-9086 UDGs prints DISPLAY GRAPHICS
9100-9112 UDGs for ACTION GRAPHICS



```
   1 BRIGHT 1: BORDER 0: CLS : PAPER 5: CLS : GO SUB 10
00: INK 0: LET hi=0: RANDOMIZE 0
   2 GO SUB 7000
   3 INK 0
   4 PAPER 7: LET torp=50: PRINT AT 14,27;torp: LET shi
ps=0: LET sunk=0: LET o$="ACTION STATIONS": FOR f=1 TO
LEN o$: PRINT  FLASH 1;AT f+2,23;o$(f): NEXT f: FOR f=1
 TO 15: BEEP .4,-20: NEXT f: PAUSE 75: FOR f=3 TO 17: P
RINT  PAPER 0;AT f,23;" ": NEXT f
   5 IF torp<=0 THEN  GO TO 4000
   6 IF ships=30 THEN  GO TO 4000
   7 LET ton=12000+(INT (RND*6)*1000)
   8 PAPER 7: PRINT AT 10,25;ton
   9 LET col=0
  10 LET side=INT (RND*2)+1
  11 LET ships=ships+1
  12 LET speed=INT (RND*3)+1
  15 LET dist=INT (RND*3)+1
  16 LET kn=11+(speed*4): PAPER 7: PRINT AT 6,25;kn
  20 GO TO 100*side
  30 IF INKEY$="f" THEN  GO TO 6000
  33 IF INKEY$<>"f" THEN  RETURN
  90 BEEP  3,40: BEEP  .3,20: PAUSE 75: RETURN
  99 REM ***MOVE L-R***
 100 GO TO 100+(dist*3)
 103 PAPER 7: PRINT AT 2,25;"1000": GO SUB 90: PAPER 5:
 FOR x=1 TO 17: PRINT AT 10,x;"HDC": PAUSE 25: GO SUB 3
0: PRINT AT 10,x;"GHIJ": PAUSE 25: GO SUB 30: PRINT AT
10,x;" "
 104 IF col=1 AND x=9 THEN  GO TO 5000
 105 NEXT x: PRINT AT 10,18;"    ": GO TO 5
 106 PAPER 7: PRINT AT 2,23;"5000": GO SUB 90: PAPER 5:
 FOR x=1 TO 18: PRINT AT 10,x;"CE": PAUSE 30: GO SUB 30
: PRINT AT 10,x;"KLM": PAUSE 80: GO SUB 30: PRINT AT 10
,x;" "
 107 IF col=1 AND x=9 THEN  GO TO 5000
 108 NEXT x: PRINT AT 10,19;"  ": GO TO 5
 109 PAPER 7: PRINT AT 2,25;"4000": GO SUB 90: PAPER 5:
 FOR x=1 TO 19: PRINT AT 10,x;"▛▜": PAUSE 100: GO SUB 30
: PRINT AT 10,x;"▞▚": PAUSE 100: GO SUB 30: PRINT AT 10
,x;" "
 110 IF col=1 AND x=10 THEN  GO TO 5004
 111 NEXT x: PRINT AT 10,20;" ": GO TO 5
 199 REM ***MOVE R-L***
 200 GO TO 200+(dist*3)
 203 PAPER 7: PRINT AT 2,25;"1000": GO SUB 90: PAPER 5:
 FOR x=18 TO 2 STEP -1: PRINT AT 10,x;"▛▜": PAUSE 25:
GO SUB 30: PRINT AT 10,x-1," ▞▚": PAUSE 25: GO SUB 30:
 PRINT AT 10,x+2;" "
 204 IF col=1 AND x=10 THEN  GO TO 5000
 205 NEXT x: PRINT AT 10,1;"   ": GO TO 5
 206 PAPER 7: PRINT AT 2,25;"2000": GO SUB 90: PAPER 5:
 FOR x=19 TO 2 STEP -1: PRINT AT 10,x;"▛▜": PAUSE 50: G
O SUB 30: PRINT AT 10,x-1;" ▞▚": PAUSE 50: GO SUB 30: P
RINT AT 10,x+1;" "
 207 IF col=1 AND x=10 THEN  GO TO 5000
 208 NEXT x: PRINT AT 10,1;"  ": GO TO 5
 209 PAPER 7: PRINT AT 2,25;"4000": GO SUB 90: PAPER 5:
 FOR x=20 TO 2 STEP -1: PRINT AT 10,x;"▛▜": PAUSE 100: G
O SUB 30: PRINT AT 10,x-1;"▞▚": PAUSE 100: GO SUB 30: P
RINT AT 10,x;" "
 210 IF col=1 AND x=11 THEN  GO TO 5004
 211 NEXT x: PRINT AT 10,1;" ": GO TO 5
 899 REM ***TUNE***
 900 FOR f=1 TO 2
 901 BEEP .45,10: BEEP .15,10: BEEP .3,9: BEEP .3,10: B
EEP .3,12: BEEP .6,7: BEEP .6,5
 902 PAUSE 1.5: BEEP .15,4: BEEP .45,4: BEEP .3,2: BEEP
.3,4: BEEP .3,5: BEEP 1.2,0
 903 PAUSE 15: BEEP .3,2: BEEP .15,5: BEEP .3,5: BEEP .
15,7: BEEP .6,12: BEEP .6,5: BEEP .3,5: BEEP .3,10: BEE
P .3,10: BEEP .15,10: BEEP .3,9: BEEP .15,7: BEEP 1.2,5
 904 NEXT f: PAUSE 130: RETURN
 999 REM ***TITLE***
1000 INK 7: FOR a=0 TO 4
1001 FOR f=0 TO 31 STEP 2: PRINT AT a,f;"/\": NEXT f: N
EXT a
1002 LET a=50: LET b=1
1003 FOR f=1 TO 9: CIRCLE 50,a,b
1004 LET a=a+10: LET b=b+.5: NEXT f
1005 INK 0: PLOT 24,46
1006 DRAW 40,0: DRAW 0,36: DRAW 24,0: DRAW 0, 20: DRAW
16,0: DRAW 0,-20
1007 DRAW 120,-8: DRAW 0,-20,-PI
1008 DRAW -200,0
1009 DRAW 0,32,-PI
1010 FOR f=16 TO 29: FOR g=5 TO 14: PRINT  PAPER 6;AT g
,f;" ": NEXT g: NEXT f: LET w=140: LET y=124
1011 FOR f=1 TO 2
1012 PLOT w,y: DRAW 4,0: DRAW 8,-12: DRAW -8,-12: DRAW
-4,0: DRAW 0,24
1013 LET w=w+24
1014 PLOT w,y
1015 DRAW 0,-24
1016 LET w=w+8
1017 PLOT w,y
1018 DRAW 8,-24: DRAW 8,24
1019 LET w=w+36
1020 PLOT w,y
1021 DRAW -12,0: DRAW 0,-24: DRAW 12,0
1022 PLOT w-12,y-12: DRAW 12,0
1023 LET w=w+20: LET y=y+4
1024 PLOT w,y
1025 DRAW 0,-16: CIRCLE w,y-24,PI/2
1026 LET w=100: LET y=y-80: NEXT f
1027 PRINT  PAPER 6;AT 21,10;"By R.Butcher"
1028 LET w=100: LET y=y 40: NEXT f
1029 PAUSE 100: GO SUB 900
1030 REM ***INSTRUCTIONS***
1031 CLS : PRINT AT 0,10;"DIVE! DIVE!"
1032 PRINT AT 1,0;"You are armed with 50 torpedoes to i
nflict the maximum damage tothe enemy convoy.": PRINT "
The convoy consists of 30 ships"
1033 PRINT "Each ship is between 10,000 and 19,000 tons
."
1034 PRINT "Each ship is a distance away of either 1,00
0--2,000--4,000 yds."
1035 PRINT "Each ship travels at either      15--19--23
knots."
1036 PRINT "You fire with the""f""key.This    releases
2 torpedoes.Any number may be fired at one ship.A hit
will be recorded if the torpedo is fired at the correct
 time.... taking into account the speed  and distance o
f the ship."
1037 PRINT "To the right of the periscope   view is a p
anel for RANGE-SPEED-TONNAGE-TORP-SCORE-HI"
1038 PRINT  FLASH 1;AT 21,9;"press any key"
1039 PAUSE 0: CLS : RETURN
4000 REM ***END***
4001 IF hi>=sunk THEN  GO TO 4000
4002 PAPER 7: IF sunk>hi THEN  LET hi=sunk: PRINT  FLAS
H 1;AT 21,25;hi: GO SUB 900
4003 PRINT  FLASH 0;AT 21,25;hi
4004 INPUT "   Another game (y/n)";g$
4005 IF g$<>"y" THEN  GO TO 4007
4006 PAPER 4: PRINT AT 10,25;"      ": GO TO 4;
4007 CLS : PAPER 7: CLS : BORDER 0: LET y$="ADMIRALTY L
ONDON STOP GOOD SHOW CAPTAIN STOP YOUR MISSION HAS   BE
EN ACCOMPLISHED STOP YOU MAY  RETURN TO BASE STOP YOU M
ANAGED TO SINK IN ONE CONVOY A TONNAGE OF "4000 FOR f=1
 TO LEN y$: LET ba=INT (RND*4): GO TO 4009+ba
4009 LET a=.00: GO TO 4015
4010 LET a=.15: GO TO 4015
4011 LET a=.00: GO TO 4015
4012 PAUSE 10: GO TO 4016
4015 BEEP a,10
4016 PRINT y$(f);
4017 NEXT f
4018 PRINT " ";hi;" tons"
4019 PAUSE 0: STOP
5000 REM ***EXPLOSION L***
5001 FOR f=1 TO 4: PRINT  INK 2;AT 10,10;"▛▜": PAUSE 7:
PRINT  INK 7;AT 10,10;"▞▚": PAUSE 7: PRINT  INK 6;AT 10,
10;"▛▜": PAUSE 7: NEXT f: PRINT AT 10,0;"    "
5002 BEEP .15,-50: BEEP .3,-55: BEEP .15,-60: GO TO 500
6
5004 REM ***EXPLOSION S***
5005 FOR f=1 TO 4: PRINT  INK 2;AT 10,10;"▙▟": PAUSE 7:
PRINT  INK 7;AT 10,10;"▙▟": PAUSE 7: PRINT  INK 6;AT 10,
10;"▞▚": PAUSE 7: NEXT f: PRINT AT 10,0;"    ": BEEP .1,
-50: BEEP .1,-60
5006 PAUSE 30: LET sunk=sunk+ton
5007 PAPER 7: PRINT AT 10,25;sunk: PAPER 5
5008 GO TO 5
6000 FOR f=10 TO 50 STEP 20: BEEP .003,f: NEXT f: REM *
**TORPEDO***
6001 LET a=17: LET b=0: LET c=17
6002 PAPER 5: FOR f=1 TO 3: PRINT  INK 7;AT a,b;"▛";AT
a,c;"▜": LET a=a-1: LET b=b+1: LET c=c-1: NEXT f
6003 FOR f=1 TO 2: PRINT  INK 7;AT a,b;"▙";AT a,c;"▟":
LET a=a-1: LET b=b+1: LET c=c-1: NEXT f
6004 PRINT  INK 7;AT a,b;"/";AT a,c;"\"
6005 REM ***ERASE TORPEDO***
6006 LET a=17: LET b=4: LET c=17
6007 PAUSE 6: FOR f=1 TO 6: PRINT AT a,b;" ";AT a,c;" "
: LET a=a-1: LET b=b+1: LET c=c-1: PAUSE 6: NEXT f
6008 PAPER 7: LET torp=torp-2: PRINT AT 14,27;"  ": PRI
NT AT 14,27;torp: PAPER 5
6009 REM ***** COLLISION CHECK *****
6011 GO TO 6010+(dist*10)
6020 IF speed=3 AND x=2 OR speed=3 AND x=17 THEN  LET c
ol=1
6022 IF speed=2 AND x=3 OR speed=2 AND x=16 THEN  LET c
ol=1
6024 IF speed=1 AND x=3 OR speed=1 AND x=14 THEN  LET c
ol=1
6025 RETURN
6030 IF speed=3 AND x=5 OR speed=3 AND x=15 THEN  LET c
ol=1
6032 IF speed=2 AND x=6 OR speed=2 AND x=14 THEN  LET c
ol=1
6034 IF speed=1 AND x=7 OR speed=1 AND x=13 THEN  LET c
ol=1
6035 RETURN
6040 IF speed=3 AND x=7 OR speed=3 AND x=14 THEN  LET c
ol=1
6042 IF speed=2 AND x=8 OR speed=2 AND x=13 THEN  LET c
ol=1
6044 IF speed=1 AND x=9 OR speed=1 AND x=12 THEN  LET c
ol=1
6045 RETURN
6999 REM ***DRAW SCREEN (T.L)
7000 FOR a=0 TO PI/2 STEP .01
7100 LET i=90-(87*COS (a))
7110 LET j=88+(87*SIN (a))
7120 PLOT 0,j
7130 DRAW (i),0
7140 NEXT a
7399 REM ***DRAW SCREEN (T R)
7400 FOR a=0 TO PI/2 STEP .01
7410 LET i=170-(87*COS (a))
7420 LET j=88+(87*SIN (a))
7430 PLOT 255,j
7440 DRAW -(i),0
7450 NEXT a
7499 REM ***DRAW SCREEN (B.L)
7500 PLOT 0,0: DRAW 255,0
7510 FOR a=0 TO PI/2 STEP .01
7520 LET i=90-(87*COS (a))
7530 LET j=88-(87*SIN (a))
7540 PLOT 0,j
7550 DRAW (i),0
7560 NEXT a
7899 REM ***DRAW SCREEN (B.R)
7900 FOR a=0 TO PI/2 STEP .01
7910 LET i=170-(87*COS (a))
7920 LET j=88+(87*SIN (a))
7930 PLOT 255,j
7940 DRAW -(i),0
7950 NEXT a
8000 REM ****SIGHTS****
8003 REM ***MIDDLE DOWN***
8008 PLOT 87,175: DRAW 0,-175
8010 REM ***MIDDLE ACROSS***
8011 PLOT 0,87: DRAW 160,0
8012 REM ***VERT LARGE SCALE***
8013 FOR f=127 TO 47 STEP -20
8014 PLOT 77,f: DRAW 20,0
8015 NEXT f
8016 REM ***VERT SMALL SCALE***
8017 FOR f=127 TO 47 STEP -5
```

```
8018 PLOT 82,f: DRAW 10,0
8019 NEXT f
8025 REM ***HORIZ LARGE SCALE***
8026 FOR f=47 TO 127 STEP 20
8027 PLOT f,77: DRAW 0,10
8028 NEXT f
8030 REM ***HORIZ SMALL SCALE***
8031 FOR f=47 TO 127 STEP 4
8032 PLOT f,82: DRAW 0,5
8033 NEXT f
8040 PRINT AT 10,10;"  "
8499 REM ***SEA***
8500 INK 7
8501 FOR f=0 TO 36 STEP 4: PLOT f,79: PLOT f+1,79: NEXT
 f
8502 FOR f=40 TO 68 STEP 4: PLOT f,78: NEXT f
8503 FOR f=72 TO 76 STEP 4: PLOT f,28: NEXT f
8505 FOR f=140 TO 164 STEP 4: PLOT f,77: DRAW 2,0: NEXT
 f
8506 FOR f=98 TO 107 STEP 4: PLOT f,76: NEXT f
8507 FOR f=112 TO 116 STEP 4: PLOT f,76: NEXT f
8508 FOR f=9 TO 69 STEP 12: PLOT f,71: DRAW 2,0: NEXT f
8509 FOR f=104 TO 164 STEP 12: PLOT f,40: DRAW 3,0: NEX
T f
8510 FOR f=10 TO 60 STEP 25: PLOT f,52: DRAW 8,0: NEXT
 f
8511 FOR f=104 TO 150 STEP 25: PLOT f,57: DRAW 7,0: NEX
T f
8512 PLOT 32,25: DRAW 30,0: PLOT 42,35: DRAW 30,0
8513 PLOT 95,50: DRAW 25,0: PLOT 119,44: DRAW 50,0
8514 PLOT 90,29: DRAW 46,0
8515 FOR f=12 TO 36 STEP 6: PLOT f,76: DRAW 3,0: NEXT f
8516 FOR f=150 TO 140 STEP 6: PLOT f,75: DRAW 3,0: NEXT
 f
9000 RESTORE 9000: FOR A=USR "A" TO USR "M"+7
9001 READ B: POKE A,B
9002 NEXT A
9005 DATA 0,0,0,62,255,100,0,0,0,40,14,7,3,3,3,0,0,0,0,
192,248,248,240,244: REM ***CLOUDS***
9006 DATA 0,0,0,0,3,7,15,127,0,0,3,15,255,255,255,255,6
2,255,255,255,254,252,252,248,255,255,255,127,31,7,1,0,
255,255,255,255,255,255,255,62,254,254,255,254,255,192,
128,0: REM ***MEDIUM CLOUD***
9007 DATA 3,15,31,63,127,126,252,252,197,240,248,252,25
4,126,63,63,255,255,126,127,63,31,15,3,63,63,120,254,25
2,248,248,192: REM ***RIVETS***
9010 REM ***CLOUDS***
```

```
9020 PRINT  INK 7;AT 9,12;"A";AT 9,15;"M";AT 9,3;"A"
9030 PRINT  INK 7;AT 8,5;"BC"
9040 PRINT  INK 7;AT 5,14;"DEF";AT 6,14;"GHI"
9050 PRINT  INK 7;AT 2,6;"DEF";AT 3,5;"G████I";AT 4,4;"C
████I";AT 5,3;"GHHHHI"
9060 REM ***RIVETS***
9070 PAPER 0: PRINT  INK 2;AT 1,1;"JK";AT 2,1;"LM";AT 1
9,1;"JK";AT 20,1;"LM";AT 1,28;"JK";AT 2,28;"LM";AT 19,2
8;"JK";AT 20,28;"LM"
9079 REM ***INDICATORS***
9080 INK 0
9081 FOR f=0 TO 10: PRINT  INK 6;AT f,25;"███████": NEX
T f
9082 FOR f=11 TO 21: PRINT  INK 4;AT f,25;"███████": NE
XT f
9083 FOR f=3 TO 19 STEP 4: PRINT  INK 0;AT f,25;"██████
█": NEXT f
9084 PAPER 6: FOR f=0 TO 8 STEP 4: PRINT AT f,26;"ENEMY
": NEXT f
9085 PRINT AT 1,26;"RANGE";AT 2,29;"yds";AT 5,26;"SPEED
";AT 6,27;"knots";AT 9,25;"TONNAGE";AT 10,31;"t"
9086 PAPER 4: PRINT AT 12,26;"TORPS";AT 13,26;"READY";A
T 16,26;"TONS";AT 17,26;"SUNK";AT 18,31;"t";AT 20,26;"H
I-SC";AT 21,31;"t"
9100 RESTORE 9100: FOR A=USR "A" TO USR "U"+7
9101 READ B: POKE A,B
9102 NEXT A
9103 DATA 0,1,3,7,255,127,63,31,4,132,196,207,255,255,2
55,255,128,128,128,192,255,254,252,240
9104 DATA 0,0,0,32,39,39,255,127,0,0,0,4,196,196,255,25
4
9105 DATA 0,0,0,0,16,16,40,255
9106 REM ***NEW BOATS***
9107 DATA 0,0,0,0,15,7,3,1,0,24,60,124,255,255,255,255,
72,72,72,252,255,255,255,255,0,0,0,0,240,224,192,128
9108 DATA 0,0,0,2,2,2,15,7,0,0,0,0,124,124,255,255,0,0,
0,64,64,64,248,224: REM ***BOAT KLM***
9109 DATA 0,0,0,0,1,1,3,15,0,0,0,0,0,0,192,240: REM ***
BOAT NO***
9110 DATA 11,17,12,85,164,84,130,112,1,5,4,20,24,64,148
,170: REM ***BUBBLES L***
9111 DATA 208,136,40,202,29,42,1,14,128,140,32,40,24,2,
5,1: REM ***BUBBLES R***
9112 DATA 129,200,217,123,99,100,255,126,0,0,36,40,140,
72,56,56: REM ***EXPLOSIONS***
9998 RETURN
9999 SAVE "dive" LINE 1
```

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Cannonball Chess TI-99/4A £6

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The instructions for this complicated war game are contained on one side of the cassette They warrant a small booklet to themselves There is just too much to remember, and it's awkward loading the instructions every time a problem occurs The game takes a long time to load so this also militates against the practice

Despite its name there's no chess involved, I assume that the strategic requirement caused the author to equate it with chess

It is much more sophisticated than the usual variety, and will probably not appeal to those who don't like thinking about the bashing

There are two kingdoms separated by a river, and — guess what? — you are the ruler of one, and the ruler of the other has told you to keep your tongue out of his river The result is war

The computer acts as moderator, deciding who gets to move how far before they can shoot, and the graphics are good The game does not take itself very seriously and for those who prefer toy soldiers this would be a good buy This needs Extended BASIC **P B.**

instructions	80%
playability	85%
graphics	80%
value for money	80%

★ ★ ★ ★

All or nothing 48K Spectrum

Abbex

Here is a game that pushes back the boundaries of what can be achieved with the Spectrum

You parachute into an army camp, populated by guards and dogs Your objective is to rescue the secret files, hidden in one of the warehouses The whole camp is depicted in full diagonal perspective 3D as you run around evading the enemy

With Currah Micro-Speech compatibility, I was astonished when one guard shouted Stop or I'll shoot' I didn't, he did, I lost As if that's not enough you can enter all the warehouses and the interiors are depicted in full 3D hi res graphics

Initially, you must enter the main office and open the safe containing the warehouse keys You have 30 seconds to find the four digit combination, before the alarm sounds All very exciting To really succeed you have to pick up objects in the warehouses, including gas bombs and guns These can be used to kill or distract the guards and dogs

Instructions are on the screen and are very explicit, covering 23 screens This program achieves a very high standard **M B**

instructions	95%
playability	100%
graphics	95%
value for money	98%

★ ★ ★ ★ ★

Henri Atari £8.95

Visions, 1 Felgate Mews, Studland St, London W6 9JT

Henri, mon ami, whatever made you join the Foreign Legion? Our adventurous young Frenchman may well wonder this when trapped in an underground tunnel, attacked by deadly bats he remembers his beloved homeland knowing he may never see it again

He turns and runs through the darkness, digging a path through the soft sandy soil Reaching into his rucksack he pulls out a Camembert cheese he has there He hurls this at an oncoming bat and it disintegrates Henri has discovered his first form of defence

Scattered around are heavy anvils By removing the soil from beneath them Henri can crush the pursuing bats

Henri has several outstanding features Nine delightful colours high quality graphics, good sound effects and an excellent scoring system

I played Henri for a couple of hours and found it a super game Then I discovered a drawback Henri can launch cheeses indefinitely with no danger from any bats If you don't hit on the flaw the game is very good, if you do, then it becomes less challenging

To end, Henri is, how you say a little on the expensive side Bon voyage, Henri **D W L.**

instructions	70%
playability	65%
graphics	85%
value for money	60%

★ ★ ★

The Wild Bunch 48K Spectrum £2.50

The Wild Bunch is an adventure, set in the Wild West and as such must be the only one of its genre You have been wrongly accused of a killing, and with a Pinkerton man on your trail pardner, you have to find the hombre who really filled him full of lead

You can travel between various old western towns to seek out clues to the identity of the real killer At each town you can potter between the store saloon, telegraph office, Sheriff's office or invite the bad guys out into the street for a showdown The street shoot-out is depicted in full hi res graphics to strains of High Noon You wait for the gunfighter to move his hands before making your move

I kept losing until I imagined I was John Wayne, then I sent him to Boot Hill, only to find I had blasted the town's doctor This annoyed the Sheriff, who promptly put me in clink

For little more than the price of a good blank cassette, this atmospheric, semi-graphic adventure is well worth adding to your collection **M B**

instructions	87%
playability	95%
graphics	90%
value for money	100%

★ ★ ★ ★ ★

Terra Force 16K Spectrum £2.50

Firebird, Wellington Hse, Upper St Martin's La, London WC2H 9DL

Terra Force is from the recently launched range of budget software from British Telecom This invaders derivative has attractive 'baroque' style graphics which class its appearance higher than the norm

Your objective is to defend the earth and the moon from Ygothulu, a sort of green crab hovering at the top of the screen You use your laser base to shoot the chains of green eggs that cascade down the screen Eventually the eggs spawn beautiful deadly winged insects which rain bombs upon you Five direct hits annihilate Ygothulu, I managed to achieve this once or twice I could not manage to reach the third level, so I can not report on what additional nasties are lying in wait

With smooth, nicely designed graphics, sound effects selectable difficulty factor, high score feature and Kempston joystick compatibility, there is nothing to suggest that this game can be obtained for a modest £2 50 Although the plot is a little derivative, it's worth emptying the loose change out of your pockets for this one **M B**

instructions	80%
playability	85%
graphics	92%
value for money	95%

★ ★ ★ ★

BBC and Electron

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Author: Ian Soutar
Published by: Micro Press
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Educational programs for the BBC using the graphics facility

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Penman or mouse?

What is there the Penman can't do? It's a mouse, turtle, printer and plotter all in one. Dave Carlos checked it over for you

Penman

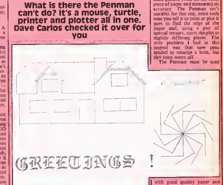
BBC or any machine with RS232 or RS423
Penman plotter £199, cable (for BBC) £20, utility pack £25, plotting platen £12.50. VAT must be added to all prices

Penman Products, 8 Hazelwood Close, Dominion Way, Worthing BN14 8NP

Is it a mouse? A turtle? A printer? A plotter? It's a Penman and it can do all these things!

In the race to find interesting and useful add-ons, this product is likely to be a real winner. Its main function is as a printer/plotter, but it doesn't print or plot in the usual way. Most printers are designed to move a print head of some type across a fixed piece of paper — not the Penman. With this machine the paper is laid flat on the desk and the print head walks across the surface, drawing as it goes.

This might seem like just another turtle of the kind you find recommended for young children to use with a LOGO language pack. The penman can be used in this way too and has a special hole which holds a pen at the centre of rotation for just such a use. But this is much, much more than a turtle for it has a full character set and can be used to print text, as well as diagrams, using its advanced three-colour plotting features. With the addition of mouse routines this has to be one of the most flexible and potentially useful add-ons on the market.



Examples of Penman printing

Penman robot plotter

But what is it like? Well, from the prints shown here you can see it certainly does work very well as a printer/plotter. I tried it with all types of printing styles and the trace was very clear and accurate. I always test a plotter by making it trace the same pattern twice on the same piece of paper and measuring its accuracy. The Penman isn't suitable for this test, since each time you tell it to print or plot it goes to find the edge of the paper and, using a pair of optical sensors, starts the plot in slightly differing places. The only problem I had in this respect was that new pens tended to smudge a little, but this soon wears off.

The Penman must be used with good quality paper and this can be quite expensive. It must also be used on a good hard surface, as dark as possible. I used the optional plotting platen and this made life very easy.

Software is an essential. It contains all the routines you might need and all the drawings here were printed using the package. Of all the driver routines supplied the mouse is the most difficult to use but you soon get the hang of this too. If you want to use this as a real turtle the Acornsoft LOGO pack for the BBC can drive the unit very easily. If you want to program your own routines you use escape sequences just as you would with an orthodox printer. The manual could be a little more helpful in this respect though.

Whilst I cannot see many people buying one of these units as a toy, they are well designed and built and will be ideal in schools and business applications where this type of output is desired. I have no hesitation in recommending the product.

D.C.

Save the world!

Deadly war machines have massacred your comrades and you alone can save your planet. Achieve the impossible in Shingo Sigiura's exciting game

Your home planet Xuvious is under attack from the warbots of the evil planet Captous. The fight has been long and desperate and now you find that all your comrades have been killed and you are the last remaining defender.

The only hope of survival is for you to destroy the whole of the gigantic Warbot fleet using your mysterious little battleship, codenamed Destron.

The Warbots are efficient machines designed purely for the purpose of killing and your chances of success seem very slight.

Billions of lives are at stake. You can't afford to fail.

The game consists of two programs. Type in the first and save it under the name INTRO. Type in the second and save it under DESTRON. This must be immediately after INTRO on the cassette system. The first program must be run before the second.

When the main program loads a brief set of instructions appear which wait until you have pressed the space bar. Then the screen clears and the Warbots move into formation. The green Grabonds move down the screen weaving left and right and the yellow Eaglons slide towards you. You lose when one of them manages to land on the planet surface. Z moves you left and R is right. Press RETURN to fire.

How it works

Listing one

10-40 REM statements

50 defines characters and envelopes used by second program

60 assembles short machine code routine to determine filing system in use

70 assembles machine code routines used by second program

80 selects MODE7 and switches off flashing cursor

90 prints instructions

100 start of procedure which prints instructions

110-260 print instructions

270 checks which filing system in use and takes appropriate action

280 end of this procedure

290-320 called if filing system present is disc. Waits until space bar pressed and proceeds to chain in second program

330-360 called if filing system is tape. Defines text window and chains in second program without waiting

370-390 function returns number depending on present filing system

400-470 assemble machine code routine used in function above. A call made to OSARGS with accumulator set to zero

480-910 assemble a number of machine code routines used in second program

920-1240 define various characters including aliens and ship, defines envelopes

Listing 2

10 DIMs

20 selects MODE2, switch off flashing cursor

30 prints brief instructions

40 assembles another short machine code routine

50-100 main loop: game and hall of fame procedures called repeatedly. At beginning of game score reset to zero

110 end

130 actual game

140-210 loop repeats until planet invaded

170 moves Destron

180 moves warbots

190 checks whether aliens landed. If not goes back to beginning of loop

230-300 move Eaglons down one character

310-410 move Grabonds in random direction

420-510 move base, handles firing of missile

520-570 called when missile launched

580-640 move missile once fired, check whether missile has hit anything

650-680 the ASCII code of character at current cursor position

690-770 called whenever missile's next position isn't a space, check missile's position with aliens' and if match, score incremented

780-860 called when you clear wave of warbots

870-920 called at the beginning of each wave. Initialises variables

930-1100 sets up screen

1110-1210 called when warbots land on planet. Creates explosion followed by tune to end failure of mission

1220-1280 play tune in above procedure

1290 data for tune

1300-1320 cause delay, determined by parameter

1330 hall of fame procedure

1350-1420 print top eight scores and names scorers

1430-1490 wait until space bar pressed

1500 end of procedure

1510 updates current hall of fame

1520 checks whether score is greater than lowest score in hall of fame

1530-1560 update positions

1570-1640 enter name of scorer and adjusts the top eight scorers

1650 end of procedure

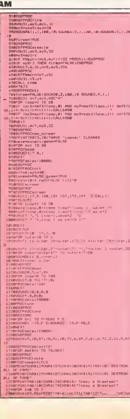
1660-1730 assemble short machine code routine used in function to return ASCII code of character at current position, make OSBYTE call with the accumulator set to 135

1740-1770 initialise the top eight scores and the names of the scorers

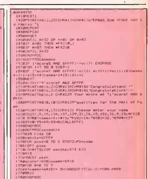
1780 end of procedure

1790-1930 procedure to print instructions

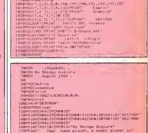
```
 10DIM def%(20,1),sol%(20,1),m%(4)
 20MODE2:VDU23;8202;0;0;0;
 30PROCintro
 40PROCassemble
 50REPEAT
 60MODE2:VDU23;8202;0;0;0;
 70 score%=0:wave=1
 80PROCgame
 90MODE7:PROCtable
100UNTILFALSE
110END
120
130DEFPROCgame
140REPEAT
150PROCinit
160REPEAT
170PROCbase:PROCbase
180IF RND(10)<5 PROCdefender ELSE PROCsoldier
190UNTIL landed OR kill=40
200IF kill=40 PROCnew_screen ELSE PROCdead
210UNTIL landed
220ENDPROC
230DEFPROCsoldier
240al%=RND(20)
250IF sol%(al%,1)<0 ENDPROC
260VDU31,sol%(al%,0),sol%(al%,1),32
270SOUND&12,2,100,5
280sol%(al%,1)=sol%(al%,1)+1
290IF sol%(al%,1)>29 landed=TRUE
300VDU17,3,31,sol%(al%,0),sol%(al%,1),132
310DEFPROCdefender
320al%=RND(20):dir=RND(3)-2
330cond=(def%(al%,0)+dir>=0 AND def%(al%,0)+dir<19 AN
D def%(al%,1)>=0)
340IF NOT cond ENDPROC
350VDU31,def%(al%,0),def%(al%,1),32
360def%(al%,0)=def%(al%,0)+dir
370def%(al%,1)=def%(al%,1)+1
380SOUND&11,4,RND(100),1
390IF def%(al%,1)>29 landed=TRUE
400VDU17,2,31,def%(al%,0),def%(al%,1),133
410ENDPROC
420DEFPROCbase
430VDU31,xco%,30,32
440xco%=xco%+(xco%>0 AND INKEY(-98))-(xco%<19 AND INK
EY(-67))
450VDU17,1,31,xco%,30,225
460IF NOT game ENDPROC
470IF INKEY(-74) PROCfire
480IF fired PROCmissile
490IF fired PROCmissile
500CALLB%
```



```
510ENDPROC
520DEFPROCfire
530VDU31,mx%,my%,32
540mx%=xco%:my%=30
550SOUND&11,1,100,10:SOUND&12,1,140,10:SOUND&13,1,200
,10
560fired=TRUE
570ENDPROC
580DEFPROCmissile
590VDU31,mx%,my%,32
600my%=my%-1
610IF FNscrn(mx%,my%)<>32 PROChit:ENDPROC
620IF my%<3 THEN fired=FALSE:ENDPROC
630VDU17,6,31,mx%,my%,226
640ENDPROC
650DEFFNscrn(x%,y%)
660VDU31,x%,y%
670CALL code
680=?&73
690DEFPROChit
700fired=FALSE:SOUND0,2,100,10 SOUND3,4,1,1
710VDU31,mx%,my%,ASC"*"
720FOR loop=1 TO 20
730IF (mx%=def%(loop,0) AND my%=def%(loop,1)) def%(lo
op,1)=-5:hit=hit+1:CALL&900
740IF (mx%=sol%(loop,0) AND my%=sol%(loop,1)) sol%(lo
op,1)=-5:hit=hit+1:CALL&900
750NEXT
760VDU31,mx%,my%,32
770ENDPROC
780DEFPROCnew_screen
790PRINTTAB(3,10)"WAVE ";wave;" CLEARED
800wave=wave+1:game=FALSE
810FOR A=1 TO 30
820PROCbase
830SOUND1,-7,A,1
840NEXT
850PROCdelay(10000)
860ENDPROC
870DEFPROCinit
880mx%=0:my%=30
890landed=FALSE:game=TRUE
900xco%=10:fired=FALSE:hit=0
910PROCscreen
920ENDPROC
930DEFPROCscreen
940VDU12,17,5,150,154,157,152,149  2 CALL2/
950COLOUR2
960FOR loop=1 TO 20
970def%(loop,0)=loop 1:def%(loop,1)=wave*5
980sol%(loop,0)=loop 1:sol%(loop,1)=wave*2
990VDU17,5,31,loop-1,wave*2,*2
1000VDU17,7,31,loop,wave*2+5,1
1010NEXT
1020COLOUR7
1030SOUND&10,-15,3,10
1040FOR outer=0 TO 6
1050VDU31,16-outer,20+outer,17,1,248+outer,249+outer,12
0
1060VDU31,17-outer,21+outer,32,31,2*outer,2*outer,32
1070FOR inner=outer*50 TO outer*50+50
1080SOUND&11,0,inner,1
1090NEXTinner,outer
1100ENDPROC
1110DEFPROCdead
1120SOUND0,5,47,84
1130FOR loop=0 TO 100
1140VDU19,0,RND(7);0;
1150PROCdelay(10)
1160NEXT
1170SOUND&10,0,0,0
1180VDU19,0,0;0;
1190PROCdelay(5000)
1200PROCtune
1210ENDPROC
1220DEFPROCtune
1230RESTORE
1240FOR S=1 TO 9:READ F,E
1250SOUND1,-15,F,E:SOUND2,-15,F-48,E
1260NEXT
1270PROCdelay(15000)
1280ENDPROC
1290DATA69,10,57,10,81,10,73,6,69,2,61,6,53,2,61,8,81,
10
1300DEFPROCdelay(T%)
1310FOR del%=1 TO T%:NEXT
1320ENDPROC
1330DEFPROCtable
1340PROCamend:CLS
1350PRINTCHR$129CHR$157CHR$130CHR$141TAB(10)"DESTRON H
ALL OF FAME"
1360PRINTCHR$129CHR$157CHR$130CHR$141TAB(10)"DESTRON H
ALL OF FAME"
1370PRINTTAB(10)CHR$134CHR$141"Today's Greatest"
1380PRINTTAB(10)CHR$134CHR$141"Today's Greatest"
1390FOR I=0 TO 7
1400VDU31,0,I+6:PRINTTAB(6)sc(I);TAB(12)$(nam
```



```
me+I*15)
1410NEXT I
1420PRINTTAB(2,23)CHR$134CHR$136"Press the SPACE BAR t
o replay";
1430REPEAT
1440REPEAT
1450A=GET
1460UNTIL A=32 OR A=81 OR A=83
1470IF A=81 THEN *FX210,1
1480IF A=83 THEN *FX210
1490UNTIL A=32
1500ENDPROC
1510DEFPROCamend
1520IF (!score% AND &FFFF)<=sc(7) ENDPROC
1530FOR I=7 TO 0 STEP-1
1540IF (!score% AND &FFFF)>sc(I) sc(I+1)=sc(I):$(names
+(I+1)*15)=$(names+I*15):fl=I
1550NEXT
1560sc(fl)=!score% AND &FFFF
1570PRINTTAB(6,2)CHR$134CHR$141"Congratulations!"
1580PRINTTAB(6,3)CHR$134CHR$141"Congratulations!"
1590PRINTTAB(6,8)CHR$129"Your score of ";!score% AND &
FFFF
1600PRINTTAB(0,10)CHR$129"qualifies for the Hall of Fa
me"
1610PRINTTAB(4,13)CHR$131"Please enter your name"
1620VDU31,5,15,134,157,129,31,26,15,156,31,9,15:*FX15
1630!&70=names+fl*15:?&72=14:?&73=32:?&74=127
1640X%=&70:Y%=0:A%=0:CALL&FFF1
1650ENDPROC
1660DEFPROCassemble
1670DIM code 10
1680osbyte=&FFF4
1690FOR pass=0 TO 2 STEP2:P%=code
1700[OPT pass
1710LDA#135:JSR osbyte:STX &73
1720RTS
1730]:NEXT pass
1740score%=&70:names=&910
1750FOR A=0 TO 7
1760$(names+A*15)="SHINGOSOFT":sc(A)=500-A*50
1770NEXT
1780ENDPROC
1790DEFPROCintro
1800VDU17,1,31,5,0,140,148,150,151,152,157,153
1810VDU17,2,31,5,4,132:PRINT"    Eaglon"
1820VDU17,2,31,7,6,133:PRINT"    Craboid"
1830VDU17,6,31,7,10,130
1840VDU17,1,31,7,11,129:PRINT"    DESTRON
1850COLOUR7:PRINT TAB(7)"DEL -Freeze
1860PRINTTAB(7)"COPY Continue"
1870COLOUR2:PRINT TAB(7)"Q-Sound off"
1880PRINTTAB(7)"S Sound on"
1890COLOUR4:PRINT"   Left-Z  X-Right
1900COLOUR5:PRINT TAB(4)"RETURN-Fire"
1910COLOUR7:PRINTTAB(6,30)"SPACE"
1920REPEATUNTILGET=32
1930ENDPROC
```



```
10REM     .Destron. .
20REM By Shingo Sugiura
30REM     August 1984 .
40
50PROCdefine
60PROCassemble
70PROCprint
80MODE7:VDU23;8202;0;0;0;
90PROCinst
100CHAIN"DESTRON"
110DEFPROCinst
120PRINTCHR$129CHR$157
130PRINTCHR$129CHR$157CHR$141CHR$130TAB(15)"DESTRON"
140PRINTCHR$129CHR$157CHR$141CHR$130TAB(15)"DESTRON"
150PRINTCHR$129CHR$157
160PRINTTAB(10)CHR$131"By Shingo Sugiura"
170PRINT"   Your home planet, a small planet in"
180PRINT"the Xuvious solar system, is under"
190PRINT"attack   from   the   hideous   Capious"
200PRINT"warbots  These  monstrous  contraptions"
210PRINT"are  virtually  indestructible  As the"
220PRINT"sole surviving defender, you must fight"
230PRINT"against the invaders in the battleship"
240PRINT"code   named   Destron .  The  hope  of"
250PRINT"survival  seems  small.  But  billions  of"
260PRINT"innocent lives are in your hands ..."
270IF FNfile=4 PROCdisc ELSE PROCtape
280ENDPROC
290DEFPROCdisc
300PRINT CHR$134CHR$136"Press the SPACE BAR to conti
nue."
310REPEAT UNTIL GET=32
320ENDPROC
330DEFPROCtape
340PRINTTAB(0,23)CHR$134CHR$136"Please leave cassette
running."
350VDU28,5,31,35,19
```

```
360ENDPROC
370DEFFNfile
380CALLcode
390=?&70
400DEFPROCassemble
410DIM code 15
420P%=code
430[OPT 0
440LDA#0:LDY#0:LDX#&70
450JSR &FFDA:STA &70
460RTS:]
470ENDPROC
480DEFPROCprint
490oswrch=&FFEE:osbyte=&FFF4
500FOR pass=0 TO 2 STEP2:P%=&900
510[OPT pass
520CLC
530LDA &70:ADC #20:STA &70
540LDA &71:ADC #0:STA &71
550.print
560LDA&70:STA&80
570LDA&71:STA&81
580LDA#17:JSR oswrch
590LDA#7:JSR oswrch
600LDA#31:JSR oswrch
610LDA#6:JSR oswrch
620LDA#0:JSR oswrch
630LDY #0
640.ploop LDX #16:LDA #0
650.abd3 ASL &80:ROL &81:ROL A
660CMP #10:BCC abd4:SBC #10:INC &80
670.abd4 DEX:BNE abd3
680PHA:INY:LDA &81:ORA &80:CPY #5:BNE ploop
690.abd5 PLA:CLC:ADC#150:JSR oswrch
700DEY:BNE abd5
710RTS
720.keys
730LDX #&AD:JSR inkey:BEQ not_freez
740JMP freez
750.not_freez
760LDX #&EF:JSR inkey:BEQ not_quiet
770LDA#210:LDY #0:LDX #1:JMP osbyte
780.not_quiet
790LDX #&9E:JSR inkey:BEQ not_noisy
800LDA #210:LDY #0:LDX #0:JMP osbyte
810.not_noisy
820RTS
830.inkey
840LDY #&FF:LDA #&81:JSR osbyte
850TYA:RTS
860.freez
870LDX #&96:JSR inkey:BEQ freez
880RTS
890]NEXT
900X%=keys:Z%=print
910ENDPROC
920DEFPROCdefine
930VDU23,224,&10,&10,&90,&30,&A0,&40,&A0,&F0
940VDU23,225,&18,&18,&99,&3C,&A5,&BD,&E7,&FF
950VDU23,226,&0C,&18,&0C,&18,&0E,&18,&0C,&18
960VDU23,227,&08,&08,&07,&0C,&05,&00,&05,&0F
970VDU23,228,&3C,&5A,&E7,&FF,&DB,&BD,&24,&66
980VDU23,229,&E7,&A5,&E7,&3C,&66,&FF,&A5,&81
990VDU23,234,&FC,&C4,&C4,&C4,&E4,&E4,&E4,&FC
1000VDU23,235,&30,&30,&30,&30,&38,&38,&38,&38
1010VDU23,236,&FC,&0C,&0C,&0C,&FC,&E0,&E0,&FC
1020VDU23,237,&F8,&08,&08,&08,&FC,&1C,&1C,&FC
1030VDU23,238,&98,&98,&98,&98,&98,&FC,&18,&18
1040VDU23,239,&FC,&C0,&C0,&C0,&FC,&1C,&1C,&FC
1050VDU23,240,&FC,&C0,&C0,&C0,&FC,&E4,&E4,&FC
1060VDU23,241,&F8,&08,&08,&0C,&1C,&1C,&1C,&1C
1070VDU23,242,&F8,&C8,&C8,&F8,&E4,&E4,&E4,&FC
1080VDU23,243,&F8,&C8,&C8,&F8,&1C,&1C,&1C,&1C
1090VDU23,244,&FC,&C6,&C6,&E6,&E6,&E6,&FC,&00
1100VDU23,245,&7E,&60,&60,&FE,&E0,&E0,&FE,&00
1110VDU23,246,&7E,&60,&60,&7E,&0E,&0E,&FE,&00
1120VDU23,247,&FE,&30,&30,&30,&38,&38,&38,&00
1130VDU23,248,&FC,&C4,&C4,&FE,&CE,&CE,&CE,&00
1140VDU23,249,&FC,&C6,&C6,&E6,&E6,&E6,&E6,&00
1150VDU23,250,&FC,&C0,&C0,&C0,&E0,&E0,&FE,&00
1160VDU23,251,&C4,&C4,&C4,&FC,&E6,&E6,&E6,&00
1170VDU23,252,&18,&18,&18,&38,&38,&38,&38,&00
1180VDU23,253,&FE,&C2,&C2,&C2,&E2,&E2,&FE,&00
1190ENVELOPE1,1,36,-36,0,20,20,0,126,0,0,-126,126,126
1200ENVELOPE2,4,90,-15,-15,10,20,20,126,0,0,-126,126,1
26
1210ENVELOPE3,2,12,10,15,5,0,0,0,0,0,-90,126,0
1220ENVELOPE4,1,70,6,0,31,10,0,126,0,0,-126,126,126
1230ENVELOPE5,1,3,0,0,7,7,0,126,0,0,-126,126,126
1240ENDPROC
```

MSX: The pros and cons

The news columns of HCW and other magazines have regularly had snippets of information about the new standard of MSX — the best thing since the ZX80 An entire battery of computers ready to destroy the British computer industry is sweeping over from Japan to the concealed horror of Commodore, Sinclair and Acorn. They have good reason to worry as Joe Public is bound to buy these new arrivals with all the good publicity ensured by trips to the South of France (I wish I was a computer journalist!)

However, I believe there can be disadvantages from everyone's point of view By setting a standard with which manufacturers must comply, Microsoft is also setting a limiting factor Keeping BASIC the same is easy to work round — just add POKEs à la Commodore — but hardware is another thing entirely Most of the chips are more or less the best available — TI9929 video display processor and AY-3-8910 sound chip Even these have been around for some time, but what about the Z80A? Most new business micros are using 16 or 32 bit processors and this is starting to move into the home market but the Z80A is the widely used but rapidly becoming outdated 8 bit.

Looking at the past two years in the computer industry, who can believe that MSX will be a viable alternative two years from now? What is innovative today is outdated in a year — remember the ZX81? People could not keep quiet about it when it was launched, but now '81 owners are sneered upon by owners of Spectrums, launched just a year later

The ZX81 was a great leap forward in micros, but MSX is just an average design, not much different from a Commodore 64 or Texas TI-99/4A, so who can guess when it will become outdated?

OK, so up to now I sound like a spokesman for Sinclair, but I can see some advantages Apart from the obvious compatibility, some specialised features can be added, although software exploiting this will be exclusive to the machine My favourite so far is Yamaha's with its superb sound facilities

I will conclude with this advice for anyone interested in buying a new computer and considering MSX Do not take the MSX sign as a guarantee of being the best computer Look at the competition carefully. Consider all the pros and cons and if you want innovation, do not look to Japan

Robin Elworthy, Maidstone

Pick the flowers in the garden — but watch out for deadly toadstools. You'll need swift reactions to be a success. By Paul Twigg

Come into the garden, Maude

Are you fed up with TI games which pause for thought each time you press a key? This program was written to solve that problem

All you have to do is pick the flower, avoiding the toadstools Sounds simple? It's not You never stop moving and you need nimble fingers to get a high score

Keys **E** and **D** have been used so you can use one hand and be quicker

The amount of flowers remains constant but the toadstools increase in number as the games progress They can crop up where you least expect them, so watch your step!

How it works

100-190	set colour
200-250	define chars
260-430	title screen
440-830	instructions
840-970	set up screen
980-1190	main routine
1170-1300	pick flower
1310-1380	pick toadstool
1390-1450	print score
1460-1490	play again?
1500-1580	bonus scoring
1590-1830	print at routine
1640-1820	hi score, name routine

Conversions for other machines should be simple as this program is simple

CALL CLEAR clears the screen
CALL HCHAR print at
CALL VCHAR print at
CALL GCHAR screen PEEK
CALL CHAR user defined graphics hex codes

Variables

SC	score
W	row number
R	column number
N	bonus score counter

```
100 REM  SET COLOURS
110 CALL CLEAR
120 CALL SCREEN(13)
130 CALL COLOR(1,5,15)
140 CALL COLOR(13,12,1)
150 CALL COLOR(14,5,1)
160 CALL COLOR(16,16,1)
170 FOR A=2 TO 12
180 CALL COLOR(A,14,15)
190 NEXT A
200 REM  DEFINE GRAPHICS
210 CALL CHAR(32,"00000000000000
FF")
220 CALL CHAR(130,"183C6E7ADFFF1
819")
230 CALL CHAR(140,"1C361C086B3E1
C")
240 CALL CHAR(150,"3844386CHA384
4C6")
250 CALL CHAR(152,"18187E7E18181
818")
260 REM  TITLE SCREEN
270 CALL HCHAR(1,1,140,32)
280 CALL HCHAR(24,1,140,32)
290 CALL VCHAR(1,1,140,24)
300 CALL VCHAR(1,32,140,24)
310 J$="THE FLOWER PICKER"
320 R=7
330 GOSUB 1600
340 J$="WRITTEN BY PAUL ROSS TWI
GG"
350 R=14
360 GOSUB 1600
370 J$="PRESS Y/N FOR INSTRUCTIO
NS "
380 R=21
```

```
390 GOSUB 1600
400 CALL KEY(0,K,S)
410 IF S=0 THEN 400
420 IF K=89 THEN 450
430 IF K=78 THEN 840 ELSE 400
440 REM  INSTUCTIONS
450 CALL CLEAR
460 J$="      THE FLOWER PICKER"
470 R=1
480 GOSUB 1600
490 J$="RUSH AROUND THE FIELD"
500 R=4
510 GOSUB 1600
520 J$="COLLECTING THE FLOWERS."
530 R=6
540 GOSUB 1600
550 J$="BUT AVOID THE TOADSTOOLS
"
560 R=8
570 GOSUB 1600
580 J$="AS THEY WILL KILL YOU."
590 R=10
600 GOSUB 1600
610 J$="IF YOU CAN PICK ENOUGH"
620 R=12
630 GOSUB 1600
640 J$="FLOWERS YOU WILL CHANGE"
650 R=14
660 GOSUB 1600
670 J$="COLOUR AND THEN YOU CAN"
680 R=16
690 GOSUB 1600
700 J$="PICK ONE TOADSTOOL."
710 R=18
720 GOSUB 1600
730 J$="USE KEYS E + D TO MOVE"
740 R=20
750 GOSUB 1600
760 J$="UP AND DOWN."
770 R=22
780 GOSUB 1600
790 J$="PRESS ANY KEY TO PLAY"
800 R=24
810 GOSUB 1600
820 CALL KEY(0,K,S)
830 IF S=0 THEN 820
840 CALL CLEAR
850 CALL CHAR(32,"")
860 FOR A=1 TO 12
870 CALL COLOR(A,2,1)
880 NEXT A
890 CALL SCREEN(13)
900 N=0
910 SC=0
920 RANDOMIZE
930 FOR O=1 TO 30
940 CALL HCHAR(INT(RND*22+2),INT
(RND*29+3),140)
950 CALL HCHAR(INT(RND*21+3),INT
(RND*29+3),130)
960 NEXT O
970 REM  MAIN ROUTINE
980 REM  MAIN ROUTINE
990 FOR W=1 TO 24
1000 FOR B=2 TO 32
1010 CALL GCHAR(W,B,X)
1020 IF X<>130 THEN 1040
1030 GOSUB 1320
1040 IF X<>140 THEN 1060
1050 GOSUB 1180
1060 CALL KEY(1,K,S)
1070 CALL HCHAR(W,B,150)
1080 CALL HCHAR(W,B,32)
1090 IF (K=5)+(W=1)THEN 1110
1100 W=W-1
1110 IF (K=3)+(W=24)THEN 1130
1120 W=W+1
1130 NEXT B
1140 IF W<>24 THEN 1160
1150 W=23
1160 NEXT W
1170 REM  PICK FLOWER
1180 CALL SOUND(10,-5,0)
1190 N=N+1
1200 M=M+1
1210 SC=SC+10
1220 CALL HCHAR(INT(RND*22+2),IN
T(RND*29+3),140)
1230 IF N<>10 THEN 1250
1240 GOSUB 1510
1250 IF N<>15 THEN 1270 ELSE 126
0
1260 GOSUB 1550
1270 IF M<>5 THEN 1300
1280 CALL HCHAR(INT(RND*22+2),IN
T(RND*29+3),130)
1290 M=0
1300 RETURN
1310 REM   PICK TOADSTOOL
1320 IF N>=10 THEN 1330 ELSE 134
0
1330 GOTO 1530
1340 FOR A=1 TO 30 STEP 2
1350 CALL HCHAR(W,B,152)
1360 CALL SOUND(100,-3,A)
1370 CALL SCREEN(RND*12+3)
1380 NEXT A
1390 REM  PRINT SCORE
1400 CALL CLEAR
1410 IF SC>HS THEN 1420 ELSE 144
0
1420 HS=SC
```

```
1430 GOSUB 1650
1440 PRINT "BIG DEAL":SC:"POINTS
 ":::
1450 PPINT N$:" SCOPED":HS::::
1460 SC=0
1470 INPUT "PRESS ENTER TO PLAY
AGAIN ":O$
1480 IF O$="N" THEN 1490 ELSE 84
0
1490 END
1500 PEM  BONUS SCOPE
1510 CALL COLOR(15,16,1)
1520 RETURN
1530 SC=SC+100
1540 CALL SOUND(50,-3,0)
1550 N=0
1560 CALL HCHAP(INT(PND*23+1),IN
T(RND*30+1),130)
1570 CALL COLOP(15,2,1)
1580 PETURN
1590 REM  PPINT AT
1600 FOP 1=1 TO LEN(J$)
1610 CALL HCHAP(R,2+I,ASC(SEG$(J
$,I,5)))
1620 NEXT I
```

```
1630 RETUPN
1640 PEM  HI SCORE
1650 J$="OH JOLLY GOOD! A NEW HI
 SCORE "
1660 R=15
1670 GOSUB 1600
1680 J$="PLEASE TYPE IN YOUP NAM
E "
1690 R=20
1700 GOSUP 1600
1710 PPINT "BEST SCOPE SO FAP ="
:HS::
1720 INPUT N$
1730 IF N$<>"" THEN 1780
1740 IF Z=1 THEN 1820
1750 PPINT "I SAID TYPE IN YOUP
NAME "::
1760 Z=Z+1
1770 GOTO 1720
1780 PPINT ::"PRESS ANY KEY TO P
LAY"::
1790 CALL KEY(0,K,S)
1800 IF S=0 THEN 1790
1810 GOTO 840
1820 PRINT ::"DON'T BOTHEP THEN"
```

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How to improve your image

Diana Smith explains how to simulate the SCREEN$ function on your ZX81 with a short machine code routine

One of the functions missing on the ZX81 is SCREEN$. On the Spectrum, SCREEN$ is used either to save the display on tape as a block of code or to read a character position off the display.

When used to fetch a character from the screen, it works like an inverted PRINT AT statement, giving the code of the character at a specified line and column on the screen. This operation can be done fairly simply by PEEKing the display file. However, PEEKing a screenful of characters using BASIC is rather slow.

The machine code routine given below speeds up the operation considerably and copies characters from the display into a variable so that they can be SAVEd.

Firstly, it helps to understand how the ZX81 display file is structured. In the 1K ZX81, space is at a premium and at switch-on the display consists of a NEWLINE market followed by an end-of-line NEWLINE for each of the 24 lines of the screen.

This means the display file is only 25 bytes long. As characters are put on the screen, the file expands to accommodate them. When a RAM pack of more than 3¼K is added, the display file is automatically expanded to its full size, that is a NEWLINE market and 24 lines of 32 spaces, each ending with a NEWLINE end-of-line market.

To illustrate this, consider the following two BASIC statements

```
10   LET SCREENSTART=
  PEEK 16396+256*PEEK
  16397

20   PRINT    CHR$
PEEK(SCRE-
  ENSTART+1+C+33*L)
```

Line 10 looks up the value in the system variable D-FILE and stores its value in the variable SCREENSTART. This holds the address of the first byte of the display file and will be the first NEWLINE character. Line 20 prints the character which is at column C and line L of the display. This lines give the equivalent of PRINT SCREEN$ (L,C).

Note that the line number is multiplied by 33 to allow for the NEWLINE character at end of each line. Try this out using the column and line numbers on page 123 of the manual. Remember to print something on the screen first from within a program. It won't work as a direct command because the screen will be cleared first![1]

Table 1 is a disassembly of the short machine code routine used to transfer the display file to a string array. The machine code routine presented here is only for use on a ZX81 with sufficient memory to give a fully expanded display file. It will transfer 22 lines of 32 characters into a string array which must be the first defined variable. By transferring the characters to the first variable in memory, we avoid the need to include a search routine. The lines are limited to 22 so that you can copy data back to the screen using the BASIC PRINT command rather than another machine code routine.

The first section of the routine finds the address of the start of the variables area which is held in the system variable VARS and moves on to find the first element of the array. Page 174 of the manual explains this step.

It then finds the address of the first byte of the display file, skips over the NEWLINE character and then transfers the next 32 bytes of the display file into the first 32 bytes of the array. The code then repeats the operation until 22 lines have been transferred.

Key in the machine code of Table 1, using the decimal loader given in Listing 1. Make sure the REM statement in line 1 contains at least 24 characters. RUN this program which will prompt you with the address of the next byte to be entered. Key in the byte value corresponding to the address on the screen followed by NEWLINE.

Repeat until all the code has been entered. When all 24 bytes have been input, you will get the report 0/70. List the program and delete lines 10 to 70. Key CLEAR NEWLINE and save the code as SCREEN$.

Test the routine by keying in Listing 2. This CLEARs the variables area so that A$ is the first defined variable and can be found by the routine. This string array will hold the characters which make up the screen.

Lines 1, 10 and 20 should always be the first three lines of a program using this routine. Indeed it is a good idea to save these lines as SCREEN$ rather than just line 1.

Lines 30 to 80 produce an exemple screen. Line 90 calls the routine which then transfers the display to A$. Line 100 clears the screen and line 110 reprints it in a fraction of the time it took to set up originally.

If you now SAVE Listing 2, the screen display will also be saved as the variable A$. Should you want to store a number of screens in your programs, you should first transfer the contents of A$ to another array. Calling the routine again will transfer another screen into A$. You can repeat this as often as you like until you run out of memory.

Table 1. Disassembly of SCREEN$

Address	Mnemonic	Comment	Byte value
16514	LD DE,6	Displacement from VARS	17
16515			6
16516			0
16517	LD NL,(16400)	VARS	42
16518			16
16519			64
16520	ADD HL,DE	Location of A$(1)	25
16521	EX DE,HL	Transfer to DE	235
16522	LD HL,(16396)	DFILE	42
16523			12
16524			64
16525	LD B, 22	B=22	6
16526			22
16527 loop	PUSH BC	Save B	197
16528	INC HL	Increase DFILE by 1	35
16529	LD BC,32	B=32	1
16530			32
16531			0
16532	LDIR	Move a line	237
16533			176
16534	POP BC	Get B	193
16535	DSNZ, loop	Finished 22 lines?	16
16536			246
16537	RET	Yes Return to BASIC	201

Listing 1

```
   1 REM 12345678901234567890123
4
  10 FOR A=16514 TO 16537
  20 SCROLL
  30 PRINT A,
  40 INPUT B
  50 PRINT B
  60 POKE A,B
  70 NEXT A
```

Listing 2

```
   1 REM )▘ E(RND, FOR E£RND▘-VA
L 7▘4   GOSUB ■AT ( PLOT TAN
  10 CLEAR
  20 DIM A$(22*32)
  30 FOR A=1 TO 22*32
  40 PRINT "■",
  50 NEXT A
  60 FOR A=0 TO 21
  70 PRINT AT A,A,"■ SCREEN$ ■"
  80 NEXT A
  90 RAND USR 16514
 100 CLS
 110 PRINT A$
```

Crazy characters

If you want to take on the role of a crazy creature, then try some of these games

Alice in Videoland
CBM 64 £8.95

Audiogenic, PO Box 88, Reading Berks

This isn't so much a game as a collection of games. There are four scenes, which are loaded from tape separately. They are linked by the Alice theme, and also by the fact that your score in one scene can affect your chances in another.

You start with a title sequence which shows Alice chasing the White Rabbit. The first scene is Alice falling down the hole catching keys, bottles and cakes. These have to be used to enable her to pass through doors in the hall. The second scene has Alice catching bread and butterflies and rocking-horse flies under the watchful gaze of the Cheshire Cat and the Caterpillar. Then it's on to a giant chess board, and a game of strategy against the Jabberwocky and the Tweedles. Finally, there is a game of croquet, which is quite tricky.

The graphics and sound effects are superb. The games are as good as you could expect, considering that you get four of them for your money. The worst feature is the delays between scenes, if you have a disc drive, it's well worth paying extra for a copy on disc. **M.N.**

instructions	75%
playability	80%
graphics	100%
value for money	95%

★ ★ ★ ★ ★

Menace
48K Spectrum
£2.50

Firebird, Wellington Hse, Upper St Martin's La, London WC2H 9DL

If you've always wanted to put a whoopee cushion on teacher's chair this is the program for you!

You are the class menace and whilst teacher's back is turned, you place nasty things on his chair, or plant catapaults in the other kids' desks to get them into trouble. You are persued by the class swot, a fat boy with glasses. His objective, apart from bumping into you and losing you a life, is to place apples on teacher's desk. You can place a green grub in it for extra points. If you bump into other pupils you lose a life and also if you are in front of the first row of desks when teacher turns round.

Apparently the school cat makes an appearance and harasses you if you score enough, but I never reached as the game demands a fair degree of skill.

Full marks for originality and humour. The graphics are good also. This will appeal to youngsters and not game sophisticates, however it should manage to raise a chuckle from most people. **M.B.**

instructions	90%
playability	85%
graphics	85%
value for money	85%

★ ★ ★

P.C. Fuzz
CBM 64 £7.95

Anirog, Unit 10, Victoria Ind Est, Victoria Rd, Dartford, Kent

There are few things more irritating than arcade games which regularly rob you of one of your few lives without giving you a chance to fight back, dodge or whatever.

This is one of those games. Your little policeman, who is rather oddly mounted on a unicycle, has a nasty habit of appearing and immediately being blown up before you've had time to blink. On those occasions when he materialises in an empty space rather than on top of a bomb, your chances of capitalising on this by arresting a few bank robbers seem fairly slim.

The trouble is that your hero's armament consists of nothing more deadly than a truncheon. According to the instructions, which are thoughtfully provided in five different languages, the direction in which this is thrown is controlled by pressing the fire button. In practice it went either forwards or diagonally forwards and upwards, neither of which is much help when a bomb is creeping up behind you.

The graphics are rather nice but this game is too limited in scope for my liking, besides being impossibly difficult to play. **M.N.**

instructions	80%
playability	50%
graphics	75%
value for money	50%

★ ★

Billy Ball to the Rescue

Stainless, 10 Alstone Rd, Stockport

Some thought has gone into the positioning of the controls in this keyboard controlled arcade game. The chosen keys are neatly positioned for operation by both hands. The instructions are sparse, though mostly on paper, but the aim is clear.

The hero, Billy Ball, is set to rescue one Beryl Ball. It isn't clear whether she is his mother, sister, or better half. She has been imprisoned in a tower — we are not told why — and Billy, who bears an uncanny resemblance to a Pacman with its mouth shut, has to bounce over obstacles to reach her and set her free.

An inset on the screen shows progress so far, while the major part of the game involves moving left to right across the screen and choosing the right moment to jump to avoid oncoming nasties. At certain points Billy has to jump vertically instead of moving forward as well, and the hazards are well presented, making good use of the Extended BASIC facility for Sprites. The graphics have been well designed and good use is made of colour. This needs Extended BASIC. **P.B.**

instructions	45%
playability	90%
graphics	80%
value for money	80%

★ ★ ★ ★

Frenzy
CBM 64 £7.95

Micro Power, Sheepscar Hse, Sheepscar St South, Leeds

Simple themes often result in excellent games — here's a good example, though owners of Sua will recognise the theme.

Everything starts easily enough with one escaped lepton bouncing round the walls of your research lab. You must trap it by walling up portions of the lab and eventually the lepton itself. If the lepton hits the ion trail wall you're working on before it's completed, then bang goes a life. There are two speeds of build, slowly annexed portions are worth more than fast filled areas.

As well as points for the areas captured and leptons caught, there is a time bonus for speedy completion of each screen. On the second screen, a chaser appears and tracks you round the walls — much slower, but equally lethal as the leptons. With further screens, more leptons and more chasers appear until there are five of each to cope with.

Although it is a game for quick thinking, it is not solely dependant on chance. Leptons always bounce at 45 degrees off walls, so strategy and planning are possible, and pay dividends. That for me is what makes it so playable. **B.J.**

instructions	95%
playability	92%
graphics	80%
value for money	95%

★ ★ ★ ★

Think before you move

Each time you move you colour a square red. Careful not to box yourself into a corner — you'll have to have all your wits about you.

By Gary Todd

Logical thought is vital in this game for the unexpanded VIC-20. What you must do is guide your character round a grid. Each time you pass over a square you colour it red.

Once a square is red, you cannot pass back over it. You must be careful not to trap yourself in a corner, and to add to your problems, a ship is firing red squares. You could easily find yourself in a mess, if you're not careful!

Hints on conversion

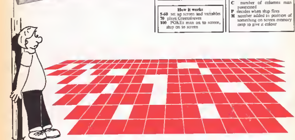
The main problem with this is the VIC's POKEs. Location **36878** sets volume of sound to high, location **36876** sets tone of sound. Location **36879,8** sets screen and border to black. The screen is small so the screen memory starts at location **7680-8185**, which must be changed to suit your computer.

How it works

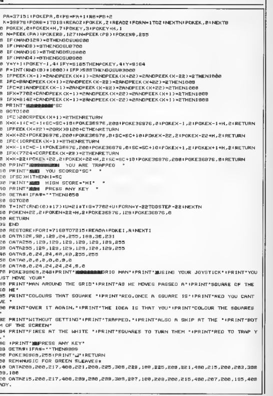
5-60 set up screen and variables
70 plays Greensleeves
100 POKEs man on to screen, ship on to screen
110-150 joystick routine
160 moves ship left to right at bottom of screen
179 decides when ship fires
485-489 checks if man is trapped
490 prints score
500 goes back to line 100
600-610 responds to joystick right, if man can move right, then he does
700-710 responds to joystick down
800-810 responds to joystick left
900-910 responds to joystick up
100-1060 man trapped routine
3000-3050 fires red square from ship to random height on grid
9000-9060 defines characters
9070-9100 prints instructions
9200-9220 data for Greensleeves

Variables

SC high score
HI high score
X position of man
Y position of ship
PA, PB, RB, N, M joystick variables
C number of columns man positioned
P decides when ship fires
H number added to position of something on screen memory map to give it colour



```
5 POKE52,28:POKE56,28:CLR
10 HI=0:POKE36878,15:POKE36879,8
20 PRINT"┘":GOSUB9000:SC=0:C=0:X=7702:Y=8164:H=30720
30 FORN=7680TO8185:POKEN,4:POKEN+H,0:NEXTN
40 FORN=7702TO8163:POKEN,1:POKEN+H,1:NEXTN
50 PRINT"██SCORE"SC"███HIGH"HI
```



```
60 PA=37151:POKEPA,0:PB=PA+1:RB=PB+2
70 K=36875:FORB=1TO18:READZ:POKEK,Z:READZ:FORN=1TOZ:NEXTN:POKEK,0:NEXTB
100 POKEX,0:POKEX+H,7:POKEY,3:POKEY+H,1
110 N=PEEK(PA):POKERB,127:N=PEEK(PB):POKERB,255
120 IF(MAND128)=0THENGOSUB600
130 IF(MAND8)=0THENGOSUB700
140 IF(MAND16)=0THENGOSUB800
150 IF(MAND4)=0THENGOSUB900
160 Y=Y+1:POKEY-1,4:IFY=8185THENPOKEY,4:Y=8164
170 P=INT(RND(0)*1000):IFP>999THENGOSUB3000
485 IFPEEK(X-1)=2ANDPEEK(X+1)=2ANDPEEK(X+22)=2ANDPEEK(X-22)=2THEN1000
486 IFC=0ANDPEEK(X+1)=2ANDPEEK(X-22)=2ANDPEEK(X+22)=2THEN1000
487 IFC=21ANDPEEK(X-1)=2ANDPEEK(X-22)=2ANDPEEK(X+22)=2THEN1000
488 IFX=7702+CANDPEEK(X-1)=2ANDPEEK(X+22)=2ANDPEEK(X+1)=2THEN1000
489 IFX=8142+CANDPEEK(X-1)=2ANDPEEK(X-22)=2ANDPEEK(X+1)=2THEN1000
490 PRINT"███████"SC
500 GOTO100
600 IFC>20ORPEEK(X+1)=2THENRETURN
610 X=X+1:C=C+1:SC=SC+10:POKE36876,200:POKE36876,0:POKEX-1,2:POKEX-1+H,2:RETURN
700 IFPEEK(X+22)=2ORX>8120+CTHENRETURN
710 X=X+22:POKE36876,200:POKE36876,0:SC=SC+10:POKEX-22,2:POKEX-22+H,2:RETURN
800 IFC<1ORPEEK(X-1)=2THENRETURN
810 X=X-1:C=C-1:POKE36876,200:POKE36876,0:SC=SC+10:POKEX+1,2:POKEX+1+H,2:RETURN
900 IFX<7724+CORPEEK(X-22)=2THENRETURN
910 X=X-22:POKEX+22,2:POKEX+22+H,2:SC=SC+10:POKE36876,200:POKE36876,0:RETURN
1000 PRINT"███████  YOU ARE TRAPPED  "
1010 PRINT"███  YOU SCORED"SC"  "
1020 IFSC>HITHENHI=SC
1030 PRINT"███  HIGH SCORE="HI"  "
1040 PRINT"███  PRESS ANY KEY  "
1050 GETA$:IFA$=""THEN1050
1060 GOTO20
3000 T=INT(RND(0)*17):U=21*T:G=7702+U:FORN=Y-22TOGSTEP-22:NEXTN
3010 POKEN+22,2:POKEN+22+H,2:POKE36876,128:POKE36876,0
3050 RETURN
3099 END
8000 RESTORE:FORI=7168TO7215:READA:POKEI,A:NEXTI
8010 DATA126,90,126,24,255,189,36,231
8020 DATA255,129,129,129,129,129,129,255
8030 DATA255,129,129,129,129,129,129,255
8040 DATA8,0,24,24,60,60,255,255
8050 DATA0,0,0,0,0,0,0,0
8060 DATA0,0,24,24,24,24,0,0
8070 POKE36869,240:PRINT"███████GRID MAN":PRINT"█USING YOUR JOYSTICK":PRINT"YOU
 MUST MOVE YOUR"
8080 PRINT"MAN AROUND THE GRID":PRINT"AS HE MOVES PASSED A":PRINT"SQUARE OF THE
GRID HE"
8085 PRINT"COLOURS THAT SQUARE ":PRINT"RED.ONCE A SQUARE IS":PRINT"RED YOU CANT
MOVE "
8090 PRINT"OVER IT AGAIN.":PRINT"THE IDEA IS THAT YOU":PRINT"COLOUR THE SQUARES
IN"
8092 PRINT"WITHOUT GETTING":PRINT"TRAPPED.":PRINT"ALSO A SHIP AT THE ":PRINT"BOT
TOM OF THE SCREEN"
8094 PRINT"FIRES AT THE WHITE ":PRINT"SQUARES TO TURN THEM ":PRINT"RED TO TRAP Y
OU."
8096 :PRINT"█PRESS ANY KEY"
8098 GETA$:IFA$=""THEN8098
8100 POKE36869,255:PRINT"█":RETURN
8200 REM*MUSIC FOR GREEN SLEAVES*
8210 DATA209,200,217,400,221,200,225,300,228,100,225,200,221,400,215,200,203,300
,209,100
8220 DATA215,200,217,400,209,200,209,300,207,100,209,200,215,400,207,200,195,400
READY.
```

Pinball magic

Here's a page of arcade games for your micro, including the ever popular pinball

Er*bert Amstrad CPC 464 £5.95

Microbyte Software, 18 Hill grove Rd, Newquay, Cornwall TR7 2QZ

As if you hadn't guessed it by now this is the pyramid jumping game in which you play at being a 'dong with a pendulous nose'. The aim is to colour as many cubes as you can before being caught and deprived of life by one of the other inhabitants.

In this game there are a few more features than in the original: there are the bananas for you to slip on and there are the Whirly Hats that can be worn to transport you around the screen. If you go for bananas look out for Boris the Gorilla as he is rather fond of them too. There is the usual snake and spinning discs that you use to cause his downfall and that is it really. The game is good and fast with plenty of colour.

Having said all that, it is nowhere near as original as other games I have seen for the Amstrad. In its favour is the fact that it is three pounds cheaper than most Amstrad games. **D.C.**

instructions	65%
playability	80%
graphics	90%
value for money	75%

★ ★ ★

SCUBA Attack 48K Spectrum £6.95

Century

For a long time I have lived with the idea that SCUBA was an acronym for Self Contained Underwater Breathing Apparatus. Just what it means in this game I have no idea.

You appear to be in an underwater spaceship defending divers with air hoses, but definitely not SCUBA divers. Every now and again a surface vessel does appear, and something or other is lowered down, but what is hard to tell.

When I tell you that you have Krypton lasers together with sonic bombs, you might be excused from thinking that you are in a space battle. But this time the 'aliens' do resemble jellyfish.

I found no evidence of the wreck the divers were supposedly investigating, and the jellyfish defending.

Although everything moved smoothly, and the keyboard response was positive, there is nothing in this game to hold your attention. **B.B.**

instructions	100%
playability	65%
graphics	95%
value for money	65%

★ ★

David's Midnight Magic CBM 64 £9.95

Ariolasoft, Asphalte Hse, Palace St, London SW1

This must be the best version of computer pinball that I have ever seen. To quote the inlay card 'an amazing electronic pinball experience'.

The pinball table takes up about two thirds of the screen. The remainder is for keeping scores. Up to four players may compete using the keyboard; joysticks are not supported by the program.

The game contains two sets of left and right flippers along with a set of left and right magnets. Pressing the space bar will jostle the table and give the ball extra bounce. Overuse of this causes a tilt and you lose bonus points. The plunger spring tension is also controlled by the player.

The graphics are extremely good and very realistic. The sound is of an equally high standard.

The instructions leave a lot to the user and do not fully explain the game. It may be worth mentioning that it is recorded on chrome tape and loads very well.

All Ariolasoft programs come with vouchers for discount off various add ons for your CBM 64 and include entry to a competition to win a SX64 computer. **K.I.**

instructions	25%
playability	100%
graphics	95%
value for money	95%

★ ★ ★ ★ ★

Ghostbusters CBM 64 £10.99

Activision, 15 Harley Hse, Marylebone Rd, Regent Park, London

This is the program of the book of the film. The film is about a group of people who set out to rid the town of its infestation of ghosts. The game follows the same theme. You take out a franchise on a ghost extermination business and set out to rid New York of its Slimers etc.

At the beginning you are given money to buy transport and essential equipment, you must make a careful choice of the cars available, buy the wrong one and you either can't fit the equipment that you need into it or you won't be able to buy the essentials for your job.

The game didn't come up to my expectations. You watch the map for ghosts, then drive to the building hoovering up any Roamers on the way. You then try to catch the ghost without getting caught yourself.

The music was very well done but the game lacked staying power and I was soon bored with it. This needs a joystick. **M.W.**

instructions	80%
ease of use	90%
graphics	90%
value for money	%

★ ★ ★ ★

Quinx CBM 64 £6.95

Supersoft, Winchester Hse, Canning Rd, Wealdstone, Harrow

Back in the days of the Commodore PET Supersoft used to supply a range of games, utilities and business software second to none. I still have a great respect for them, but Quinx is not going to help restore them to the top.

The scenario is of Arthur having a nightmare before his exams, defending a sheet of paper against ink trailing worms which turn into paper-eating monsters. Arthur must walk over them before they become monsters, whilst covering their trails with Tippit. Distractions include occasional food morsels worth bonus points and visits to the toothbrush to satisfy the marauding dentist. Once the ink trailing worms have used up one bottle of ink another appears of a different colour. When this occurs, if Arthur is not stationed on a piece of paper at least 25% the size of the original, it's end of game. Thus, due to the dentist, bonuses and paper splitting monsters becomes increasingly difficult.

Whilst the graphics are good, the musical accompaniment is minimal. There's no fast load, no high score table, and it's not particularly cheap. Overall — nothing special. **B.J.**

instructions	90%
playability	78%
graphics	90%
value for money	80%

★ ★ ★

If you've got a Spectrum, you may not be all that happy with its sound facilities

Here's a program which improves on the Spectrum's inbuilt qualities and opens up new possibilities for making a noise on your micro

Now you can beep away to your heart's content, with a variety of different sounds emerging from your computer!

Lend me your ears

Listen to this! You'll be surprised and delighted at the improvements to your Spectrum's noise capabilities with this program by I. Priddey

```
   1 MACHINE CODE SOUNDS                                        I.PRID
DEY                                                  1.9.8.4

   5 CLEAR 45055
   9 REM M/C CODE 1
  10 FOR i=45056 TO 45065: READ a: POKE i,a: NEXT i
  20 DATA 33,138,2,17,5,0,205,181,3,201
  29 REM M/C CODE 2
  30 FOR i=45066 TO 45075: READ b: POKE i,b: NEXT i
  40 DATA 33,138,1,17,5,0,205,101,3,201
  49 REM M/C CODE 3
  50 FOR i=45078 TO 45087: READ c: POKE i,c: NEXT i
  60 DATA 33,130,0,17,5,0,205,101,3,201
  69 REM M/C CODE 4
  70 FOR i=45088 TO 45108: READ d: POKE i,d: NEXT i
  80 DATA 58,72,92,15,15,15,30,0,243,211,254,238,16,67,16,254,28,32,246,251,201
  89 REM M/C CODE 5
  90 FOR i=45110 TO 45129: READ e: POKE i,e: NEXT i
 100 DATA 58,72,92,15,15,30,0,243,211,254,238,16,67,16,254,29,32,246,251,201
 109 REM M/C CODE 6
 110 FOR i=45131 TO 45151: READ f: POKE i,f: NEXT i
 120 DATA 58,72,76,15,30,0,243,211,254,238,16,67,16,254,29,29,29,32,244,251,201
 129 REM M/C CODE 7
 130 FOR i=45153 TO 45198: READ g: POKE i,g: NEXT i
 140 DATA 243,50,34,34,15,8,38,0,1,120,0,8,211,254,238,16,8,46,0,85,92,167,237,8
2,237,82,17,84,2,25,125,140,56,1,61,103,61,32,253,11,120,177,32,223,251,201
 500 REM BASIC SOUNDS ROUTINES
 510 REM SOUND 1
 515 PAUSE 30: CLS : PRINT "SOUND 1": FOR I=1 TO 30: RANDOMIZE USR 45056: NEXT I
 520 REM SOUND 2
 525 PAUSE 30: CLS : PRINT "SOUND 2": FOR I=1 TO 30: RANDOMIZE USR 45066: NEXT I
 530 REM SOUND 3
 535 PAUSE 30: CLS : PRINT "SOUND 3": FOR I=1 TO 30: RANDOMIZE USR 45078: NEXT I
 540 REM SOUND 4
 545 PAUSE 30: CLS : PRINT "ROUND 4": FOR I=0 TO 30: RANDOMIZE USR 45056: RANDOM
IZE USR 45066: RANDOMIZE USR 45070: NEXT I
 550 REM SOUND 5
 555 PAUSE 30: CLS : PRINT "SOUND 5": FOR I=1 TO 20: RANDOMIZE USR 45088: NEXT I
 560 REM SOUND 6
 565 PAUSE 30: CLS : PRINT "SOUND 6": FOR I=1 TO 20: RANDOMIZE USR 45110: NEXT I
 570 REM SOUND 7
 575 PAUSE 30: CLS : PRINT "SOUND 7": FOR I=1 TO 20: RANDOMIZE USR 45131: NEXT I
 580 REM SOUND 8
 585 PAUSE 30: CLS : PRINT "SOUND 8": FOR I=1 TO 20: RANDOMIZE USR 45153: NEXT I
 590 REM SOUND 9
 595 PAUSE 30: CLS : PRINT "SOUND 9": FOR I=1 TO 20: RANDOMIZE USR 45131: RANDOM
IZE USR 45153: NEXT I
 600 REM SOUND 10
 610 PAUSE 30: CLS : PRINT "SOUND 10": FOR I=1 TO 20: RANDOMIZE USR 45088: RANDO
MIZE USR 45110: NEXT I
 615 REM SOUND 11
 620 PAUSE 30: CLS : PRINT "SOUND11": FOR I=1 TO 20: RANDOMIZE USR 45088: RANDOM
IZE USR 45153: RANDOMIZE USR 45110: RANDOMIZE USR 45088: NEXT I
```

Run for your life

Four exciting games to have you on the edge of your seat. Our reviewers give you the low-down

Chopper Oric/ Atmos 48K £8.50

Severn, 15 High St, Lyndney, Glos GU5 5DP

In this side scrolling game — scrolling from right to left — you fly a helicopter through three different stages. In the first, you shoot enemy helicopters and aircraft and avoid missiles as they speed towards you.

In the second you can't shoot back, but the enemy balloons and airships don't shoot either. It's just a case of avoiding them.

In the third you arrive at the enemy base. You have to hit the controls at the end of the ventilator shafts. When this is done, a slit appears on the barrier which you shoot to destroy the base completely. Two indestructible helicopters guard the shafts. In between these stages, you refuel by guiding your chopper's refuelling pipe. When the three stages are completed they are repeated at a faster rate.

The graphics are superb. The characters are incredibly well defined and sound is used to good effect. All the expected options are here and, overall this is an addictive shoot 'em up with some of the best graphics around. **S S**

instructions	90%
playability	90%
graphics	95%
value for money	60%

★ ★ ★ ★ ★

Run Boby Run 48K Spectrum £2.50

Firebird, Wellington Hse, Upper St, Martin's La, London WC2H 9DL

The plot is the old one of cops and robbers. In your getaway car, you drive round one of five derelict locations, eluding the seven police cars in pursuit. By criss crossing and sudden changes of direction, you make the police cars crash into each other.

Even on the lowest level I found the game frustratingly difficult — perhaps too difficult. The cassette inlay explains that when you have wrecked six cars, the seventh lets loose with rockets whereupon you must leave the location as quickly as possible or risk a rocket up your exhaust. I never reached the stage at which I was rocketed, so I can't comment on this.

On the whole I found the locations unexciting, as they were little more than two dimensional mazes and there was little to differentiate them, each being as drab as the next. I did try to improve my performance by connecting a joystick, but discovered that I made less progress this way than with the keyboard. This game is about what one might expect to get for a price of £2.50. **M B**

instructions	90%
playability	70%
graphics	70%
value for money	75%

★ ★

Super Scramble CBM 64 £6.50

Mushroom, 193 Rommany Rd, London SE27 9PR

In the early days when life was simple, there was space invaders, frogger and scramble. Compared to many current games, these were primitive, but in spite of this they were goodies. Mushroom seem to concur since they have produced a copy of scramble. And, I must say, it's as good as any I've seen.

You pilot a space ship moving left to right down six sets of terrain. You collect fuel by bombing fuel dumps and you shoot, bomb and generally avoid sundry obstacles. The only weird part is screen five. This appears non standard. The prime opposition is a hoard of nasty green toads.

The design is excellent with smooth scrolling and nicely animated radar scanners and rocket exhaust. The music is an appalling version of Paint it Black and the only way to toggle it on and off is to shoot or bomb musical notes scattered about the landscape.

The first five screens are slightly on the easy side. The last screen is really tough. This should appeal to beginners who want to feel they're getting somewhere.

If you really need a scramble to complete your collection, this one's worth a good look.

Instructions none! **A W**

instructions	N/A
ease of use	70%
graphics	80%
value for money	60%

★ ★ ★

Booty 48K Spectrum £2.50

Firebird, Wellington Hse, Upper St Martin's La, London WC2H 9DL

The only thing cheap about Booty is the price. One is most impressed by the loading screen of a galleon by moonlight and when loading is complete, the animation of the waves coupled with the hornpipe music, create a good impression, maintained when the game starts.

You are located below decks in the pirate's galleon and your objective is to unlock the bulkhead doors and wander through the stowage areas collecting treasure. To prevent this, the area is patrolled by pirates with large cutlasses and parrots. So you dodge up and down ladders, collect keys, open doors and discover that the hold is quite a labyrinth. Going through certain doors is slightly dodgy, as there is nothing on the other side but a sheer drop, so be careful.

The graphics are smooth moving and the sound is excellent, the game has quite an addictive quality which is an indication that it should do well and I've certainly seen games of comparable quality selling for three times this price. So get yourself a tricorn and stuffed parrot and claim your share of the Booty. **M.B**

instructions	90%
playability	95%
graphics	90%
value for money	100%

★ ★ ★ ★ ★

Robooctive TI-99/4A £6

Absolute, 8 Chapel La, Houghton, Cambs PE17 2AY

Valuable barrels of uranium are an unusual treasure to collect, nevertheless, plenty lie discarded in a contaminated mine. You won't be risking your health by descending into its depths, as a remote controlled robot is ready to command.

The screen displays a cavern and there are three different ones altogether, in which lie nine barrels. If all barrels are collected within the time limit, which decreases at more advanced levels, then the robot continues in the next cavern. Points are awarded for each barrel collected, as are bonuses for completing each screen in time.

The layout has been carefully prepared. To reach each of the barrels, the robot must be taken along an exact route to make full use of platforms and ladders. A wrong course makes the task impossible. There are huge mutant insects that inhabit the mine, which prove to have an intense dislike of robots.

Control of movement is from a joystick, using up, down and top left and right diagonals. Since some Texas joysticks are difficult to position on the diagonals, mine included, frustration with the hardware ultimately spoils the game. This needs extended BASIC. **J W**

instructions	65%
playability	60%
graphics	60%
value for money	60%

★ ★ ★

Money maze

Money is the theme of this program by David Bridge. Collect the £s and get rich quick

This is a game for budding Ebenezer Scrooges. Your aim is to eat as many £ signs as you can without bumping into anything white.

The game has five stages. Stage one is fairly easy but stage five is virtually impossible so you'll need a lot of practice.

[illegible] too often.

First you are faced with brief instructions and asked to pick [illegible] Type in a number from one to five but don't press return. You can use [illegible] keyboard and [illegible] at the top of the screen [illegible] you know your score and allows you to move on to the next stage.

Note: Type in, save and run the program. Saving before running is important because the program contains POKEs. Typing a wrong value may cause the computer to crash thus destroying the program.

Hints on conversion

The CBM 64 has a 100 screen (40 column x 25 lines). The screen starts at 1024 so the numbers 1484 + M are co-ordinates for the centre of the screen. If your computer has a 1000 character screen find out its start position and add 450 to give value substitute for 1484.

POKE 53281,0 turns the screen black. **53280** turns the border black. **PRINT CHR$(14)** puts the CBM 64 in lower case and **(142)** in upper case. Subroutine **8000** finds position of joystick and whether the fire button has been pressed and increments R accordingly.

All POKEs in lines **58-110** are for screen manipulation, while **80-96** draw a border line in white.

55296 and the next 1000 memory locations are the colour memory map. **POKE 1024,156 POKE 55296,14** puts a blue £ in the top left corner.

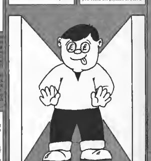
Variables

M + 1484 position of player
R amount to increment M by to find new position
J lives lost
L money picked up including bonus
F money dropped
S money left
B bonus
G speed of player
H rate of speed increase
Q skill levels
P £s

How it works

0 select lower case characters
1-53 print instructions, set all variables to 0, make screen black
55 select upper case characters
56-130 set up screen
200-296 get movement and work out next position, check if valid move
3000-3002 count up players so far
3006-3060 print score
5000-7030 prints instructions
8000-8100 pick skill level, work out new levels throughout game
10000-10050 score so far, when men are lost
13005-13770 hall of fame results
16000-16070 get direction of joystick

Controls **J** up, **M** right, **N** left, **space bar** down. Alternatively you could use joystick in port 2



```
0 PRINT CHR$(14
2 PRINT CHR$(14.."JYOU ARE———   ●'" FOR T= 1 TO 2000 NEXT REM SHIFTED "
3 L=0 E=-2 PRINT"J"
4 B=-2 U=0
5 POKE 53281 0 POKE53280.0
50 DIM A(500),B(500)
53 T=0
55 PRINT CHR$(142)
56 PRINT"J"
58 FOR I=1 TOP LET A(I)=INT(1000*RND(1)+1) NEXT
60 FOR I= 1 TO P POKE1024+A(I),160 POKE55296+A(I),1 NEXT
70 FOR I=1 TO P-5 LET B(I)=INT(1000*RND(1)+1) NEXT
75 FOR I= 1 TO P-5 POKE1024+B(I),156 POKE55296+B(I),14 NEXT
80 FORI=1TO40 POKE1023+I 160 POKE55295+I,1 POKE56255+I 1 POKE1983+I,160 NEXT
90 FORI=1TO920STEP40 POKE1063+I 160 POKE55335+I 1 POKE55374+I,1 POKE1102+I 160
```

```
35 NEXT
100 FOR I=1 TO 5 POKE1063+I 46 NEXT
105 FOR I=1 TO 16 POKE10 +I 160 POKE55 +I 1 NEXT
106 FOR I=1 TO 16 POKE1067+I 160 POKE55 5+I 1 NEXT
110 POKE1073,105 POKE1065,45 POKE 55351 1 POKE 55360,1
115 REM +HOME CUR R +CURSOR RIGHT 11 TIMES +
120 PRINT"■▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶▶L''EL""
122 REM +HOME+ RIGHT   TIMES
125 PRINT ■▶▶PLAYER' ;K
130 IF 1 THEN PRINT'■▶▶PLAYER 1'
140
200 M=M P=0
210 POKE 14 +M 1 POKE55 5+M
  FOR T= 1 TO
  POKE1 A00
  GETA$
  IF A$=CHR$ 1  THEN F=M
  IF A$='T' THEN F  40
  IF A$='  ' THEN F=40
  IF A$="M" THEN F=1
  IF A$= N" THEN F= 1
  POKE 14-4+M 10   K
  -F+A
  M=M+F
  IF PEEK 14-4+M =   THEN 1000
  IF PEEK 14 4+M =160 THEN GOSUB 2000
  IF PEEK 14 4+M =15  THEN GOSUB 4000
  GOTO 210
1000 T=T+1 IF T   THEN 3000
1001 GOTO 11000
1002 RETURN
2004 PRINT CHR$ 14
2005 REM + F 5 + HOME+RED + RESULT SHIFTED + SHIFTED ASTERISK +THEN RESULT  ET
2006 PRINTCHR$ 14
2007 PRINT"■■—_‾● ⊔●—_‾●⊔●—_‾● ⊔●—_‾● ⊔●——■"
2009 REM +YELLOW+CUR OF DOWN 2 +CUR OF RIGHT 4 +SHIFTED T +
2010 PRINT"■■▶▶▶▶▶YOU COLLECTED £",L
2019 REM + PURPLE +CURSOR DOWN+ CURSOR RIGHT + SHIFTED T
2020 PRINT"■■THIS AMOUNT WAS REDUCED BY£ " F"DUE TO DROPPING IT BY WALKING
2025 L=L-F
2029 REM + COMMODORE AND 1 +R   +CUR OP DOWN+CURSOR RIGHT+SHIFTED T
2030 PRINT"■■■▶▶▶▶THEREFORE YOU HAVE £",S'■ LEFT"
2035 PRINT"PRESS ANY KEY TO CONTINUE"
2040 GETA$ IF A$="" THEN 2040
2055 PRINT"■"
2060 GOTO 12000
4000 P=P+5
4005 L=L+50+I
4010 G=G-H
4020 RETURN
5000 POKE53281,0 POKE53280 0
5001 GOSUB 7000
5022 REM +CUR OF DOWN   + RIGHT 4 +SHIFTED Y
5030 PRINT"■■▶▶▶▶YOUR AIM IS TO EAT ALL THE SQUARES  MARKED ■■ AND TO '
5035 PRINT'AVOID HITTING THE
5040 PRINT'WHITE SQUARE  ■■. HITTING A WHITE SQUARE WILL RESULT IN '
5050 PRINT"LOSS OF LIFE AS WILL HITTING A WALL"
5052 REM + CUR OF DOWN ' RIGHT   + SHIFTED E
5060 PRINT'■■▶▶EACH TIME YOU HIT A ■■■ SQUARE YOUWILL RECEIVE AN AMOUNT
5070 PRINT'OF MONEY. THIS   AMOUNT WILL INCREASE EACH TIME  HOWEVER YOUR '
5080 PRINT"PLAYER WILL SPEED UP.
5089 REM + CUR OF DOWN 2 RIGHT   + SHIFTED U
5090 PRINT'■■▶▶▶WHEN YOU HAVE COLLECTED THE MONEY,YOU MUST GO TO THE SPACE AT
6000 PRINT' THE TOP OF THE SCREEN WHERE YOU WILL PROCEED TO THE NEXT STAGE.'
6100 PRINT'■■ PRESS  F1  TO GO ON OR  F5  TO PLAY "
6150 GET A$ IF A$='■  THEN5000 REM + F1 IN SHIFTED Z
6160 IF A$='■  THEN 6000 REM F  IN  SHIFTED Z
6170 GOTO 6150
```

4 PROGRAM

```
6000 GOSUB 7000
6099 REM ♦ YELLOW ♦ DOWN 1 ♦ RIGHT 1 ♦ SHIFTED Y
6100 PRINT"YOU MAY PICK SKILL LEVELS 1 TO 5 "
6109 REM ♦ DOWN 2 ♦ RIGHT 1 ♦SHIFTED Y
6110 PRINT"[illegible] HAVE FOUR LIVES AND WILL BE TOLD YOUR SCORE EACH "
6120 PRINT"TIME YOU LOSE ONE."
6129 REM ♦ DOWN 1 ♦ RIGHT 1 ♦SHIFTED H
6130 PRINT"[illegible]ING TO A NEW SCEEN WILL RESULT IN   MORE OBSTACLES BEING "
6140 PRINT"[illegible]ED"
6199 REM ♦ DOWN 2 ♦ BLUE ♦ RVS ♦ YELLOW ♦RVS OFF ♦
6200 PRINT"      PRESS ANY KEY TO PLAY      "
6210 GET A$ IF A$="" THEN 6210
6220 GOTO 8000
6999 REM [CLR HOME] [RVS] [YELLOW] [39 SPACES]
7000 PRINT"                                        "
7004 REM [RVS] [PURPLE] [39 SPACES]
7005 PRINT"                                       "
7010 PRINT"     RULES FOR PLAYING MONEY MAZE      "
7020 PRINT"                                       "
7025 PRINT"
7030 RETURN
7999 REM ♦ CLR HOME ♦DOWN 2 RIGHT 4 ♦
8000 PRINT"PICK SKILL LEVEL"
8010 GET A$ IF A$="" THEN 8010
8020 Q=VAL(A$)
8030 ON Q GOTO 8050 8055 8060 8065,8070
8050 LET G=300 H=10 F=20 GOTO 8100
8055 LET G=300 H=20 F=25 GOTO 8100
8060 LET G=250 H=15 F=25 GOTO 8100
8065 LET G=250 H=20 F=10 GOTO 8100
8070 LET G=200 H=20 F=40 GOTO 8100
8100 RETURN
9999 REM ♦ HOME CURSOR ♦
10000 PRINT"YOUR SCORE SO FAR IS"L-F
10010 Q=Q+1 F=0 IFQ=6 THEN Q=5
10020 GOSUB 8020
100[illegible]0 FOR T= 1 TO 2000 NEXT
10050 GOTO 55
10999 REM ♦ HOME CURSOR ♦ DOWN 1 RIGHT 1 ♦ RVS ♦
11000 PRINT"THAT IS NOT ALLOWED"
11001 REM ♦ HOME CURSOR ♦ DOWN 2 RIGHT 1 ♦ RVS ♦
11002 PRINT"YOU LOSE 1 LIFE"
11005 FORI= 1 TO 2000 NEXT
11009 REM ♦ WHITE ♦ HOME ♦ DOWN 1 RIGHT 1 ♦ 14 SPACES ♦ SHIFTED £ ♦4 SPACES ♦
11010 PRINT"                ◤    "
11014 REM ♦YELLOW ♦ HOME ♦ DOWN 2 RIGHT 1 ♦15 SPACES ♦
11015 PRINT"                 "
11016 FOR I=1 TO 15 POKE1063+I 160 POKE55335+I 1 NEXT
11017 POKE1424+M 160
11019 REM ♦ HOME ♦ RIGHT 3 ♦
11020 M=0 R=0 PRINT"PLAYER"J+1
[illegible] RETURN
[illegible] REM ♦ SHIFTED ASTERISK ♦ SPACE 1 ♦ SHIFTED Q ♦
[illegible] PRINTCHR$(142)"YOU ARE ————————— ●"
[illegible]
[illegible] REM ♦ CLR HOME ♦ RIGHT 10 ♦SHIFTED HALL OF FAME ♦
[illegible] PRINTCHR$(14)"HALL OF FAME" E$="" Y=0
[illegible] REM DOWN 2 ♦ RIGHT 1 ♦ SHIFTED ENTER YOUR NAME ♦
[illegible] PRINT"ENTER YOUR NAME"
[illegible] REM ♦ DOWN 1 RIGHT 1 ♦
[illegible] PRINT"PRESS ← TO FINISH"
[illegible] GET A$ IF A$="" THEN [illegible]
[illegible] Y=Y+1
[illegible] IF A$="←" THEN 12500
[illegible]45 IF A$=CHR$(13) THEN 12500
[illegible] IF Y 15 THEN 12500
[illegible]55 B$=B$+A$
[illegible] REM ♦ HOME ♦ DOWN 4 RIGHT 4 ♦
```

```
13057 PRINT"[illegible]"I$
13060 GOTO [illegible]
13500 C$(10)=B$
13510 GOSUB 13700
13540 REM ♦ NAME ♦ 10 SPACES ♦ SCORE ♦ 3 SPACES ♦ [illegible]
13550 PRINT"[illegible]"
13570 FOR E= 1 TO 10
13580 PRINTC$(E);TAB(14)C(E)TAB(30)E:NEXT
13600 PRINT"PRESS ANY KEY TO CONTINUE"
13665 GET A$:IF A$=""THEN 13665
13680 GOTO 1
13700 FOR E= 1 TO 9:FOR U= 9 TO 1 STEP -1
13710 IF C(U+1)<C(U) THEN 13750
13720 D=C(U):D$=C$(U)
13730 C(U)=C(U+1):C$(U)=C$(U+1)
13740 C(U+1)=D:C$(U+1)=D$
13750 NEXT:NEXT
13770 RETURN
16000 A=15-(PEEK(56320)AND15)
16005 B=PEEK(56320)AND16
16007 IF B=0 THEN F=0
16010 IF A=1 THEN P=-40
16020 IF A=2 THEN P=40
16025 IF A=4 THEN P=-1
16030 IF A=5 THEN P=-41
16035 IF A=6 THEN P=39
16040 IF A=8 THEN P=1
16045 IF A=9 THEN P=-39
16047 IF A=10 THEN P=41
16050 RETURN
16060 GOTO 16000
```

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Technicians wanted

We've got £1,400-worth of prizes on offer this week. You could win two great games from Hewson consultants

We've got an extra treat for you this week — £1,400-worth of prizes are on offer to owners of Spectrum and Amstrad computers. One hundred winners will each receive two games, Technician Ted and Heathrow International Air Traffic Control, from Hewson Consultant's popular range. Technician Ted costs £5.95 on the Spectrum and £7.95 on the Amstrad CPC464, HIATC is priced at £7.95 for both computers.

Technician Ted is an amusing escapade in a silicon chip factory. You play the part of the incompetent hero who can't even manage to clock on without problems. It's an arcade adventure with 50 screens and according to Hewson Consultants 'the graphics are extremely clear and varied'.

In your role as Ted, you attempt to complete your day's work to the accompaniment of the Blue Danube and the Radetsky march. The game was written by Steve Marsden and David Cooke who both have first hand experience of working in a micro-processor plant. Let's hope the silicon chips they work with are more co-operative than Ted's!

HIATC places an enormous weight of responsibility on your shoulders as you take charge of the skies above Heathrow International Airport. The author is a profession al ATC at Heathrow so simulator fans should find this program very realistic.

The game features Concorde radio failures and rogue aircraft to keep the excitement at a peak. Your task is to land 10 aircraft safely. This job is very complex and has been broken down into different levels of expertise.

Side two of the cassette contains an alternative version based on Schiphol Airport, Amsterdam's equivalent of Heathrow.

So, if you have a sense of humour and a sense of responsibility these games are for you. Enter now, you could be one of the lucky 100!

How to enter

Study the two cartoons — there are a number of differences between them. Circle the differences on cartoon B and seal the cartoon and coupon in an envelope. Write clearly the number of differences you found on the back of the envelope.

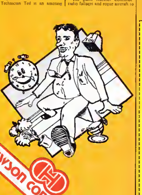
Post your entry to Hewson Consultants Competition, Home Computing Weekly, No 1 Golden Square, London W1R 3AB. Closing date is at first post on Friday February 8 1985.

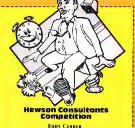
You may enter as many times as you wish but each entry must be on an official coupon — not a copy — and sealed in a separate envelope. **Important**: please follow carefully the guidelines on entering — incomplete coupons and entries in envelopes with no numbers on the back cannot be considered. If you are a winner, the coupon will be used as a label to send your prize, so clear writing is essential.

The rules

Entries will not be accepted from employees of Argus Specialist Publications, Hewson Consultants and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies.

The How to Enter section forms part of the rules.





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Complete clearly and fully — if you are a winner this will act as a label for your prize. Post to Hewson Consultants Competition, Home Computing Weekly, No 1 Golden Square, London W1R 3AB. Closing date first post Friday February 8 1985. Don't forget to follow closely the advice in the How to Enter section including writing the number of differences found on the back of your envelope.

Spider-man and Se-Kaa

Here's a page full of adventures for the addicted. Read on to see whether our reviewers were baffled

Funhouse
48K Spectrum
£5.99

Pacific

This is a partially illustrated adventure set in a deserted fairground. Aliens have crash-landed, and hold the neighbouring town hostage. Your task is to seek out the Brain and destroy it but of course, you must collect certain objects like a two part protective mask. Needless to say there are evil guardians to contend with.

I rather liked this. The screen layout is attractive with a redesigned character set and decorative borders of sensible colours. The illustrations are well done, and held in RAM rather than drawn. As a result they appear quickly. The input interpreter seems versatile, accepting several single letter commands but handles longer inputs rapidly. It can keep up with quick typists too!

The plot is a pleasant change from the traditional dungeons and dragons and allows the novice adventurer to get started before killing him off! Perhaps pleasant is the wrong word. An almost oppressive air of evil and malevolence hangs over the scene aided by strange sights and graphic descriptions.

Well executed (!) novel interesting and good value, this should appeal to adventurers.

D M

instructions	85%
playability	100%
graphics	100%
value for money	100%

★ ★ ★ ★ ★

Volcanic Dungeon
48K Spectrum
£2.99

Mastervision, Park Lorne, 111 Park Rd, London NW8 7JL

An impressively presented text/graphics adventure from part of the Mastertronics organisation. Very detailed notes place your task in context. Essentially, you find yourself in an underground maze guarded by monsters in which you collect the weapons you need to survive whilst searching for the glass coffin which holds the elfin princess.

The display consists of a lower section for the cleverly designed characters, quite difficult to read, whilst the upper right area gives a continuous status display. Upper left is a fairly crude box which [illegible] location and a monster if there is one.

The booklet already contains a dungeon map and some useful playing hints. Very welcome to beginners.

Input is by single keystrokes but this is not such a good idea because it limits your instructions. Options seem very restricted in comparison with other adventures and this, together with a map which shows the locations to be linked in grid iron fashion, tends to inhibit your own imaginative additions. Not to my taste.

D M

instructions	100%
ease of use	100%
graphics	80%
value for money	100%

★ ★

The Secret of Arendorvon Castle
48K Spectrum
£5.95

Addison Wesley, Finchampstead Rd, Wokingham, Berkshire RG11 2NZ

One of the criticisms levelled at adventures by non fanatics is the lack of instructions and documentation. One essential feature of a first class all text adventure is careful description of locations. These two facets of design are covered by this program in a book. This is a book containing a BASIC management program with a hex loader and page after page of hexadecimal code to enter (1200 bytes in all! It is suggested that you spread this task over 7 days work!

Is it worth it? Certainly the presentation is plain text without capital letters. The answer has to be yes. Within the book is a wealth of information and clues: a guidebook, newspaper clippings on the goings on, reporter's notes, maps, extracts from ancient scripts and drawings.

When I first looked at it I was ready to dismiss it. Having read the book I'm drawn into a mysterious world. Fascinating! If you prefer, the publishers will supply the program on tape but at extra cost. An interesting innovation.

D M

instructions	100%
playability	N/A
graphics	N/A
value for money	100%

★ ★ ★ ★ ★

Se-Koo of Assiah
48K Spectrum
£2.99

Mastervision, Park Lorne, 111 Park Rd, London NW8 7JL

The presentation is that of a fully illustrated graphic adventure in two parts, each loaded separately. A lot of program for your money! First you acquire the objects to enable you to defeat the Dark Hordes, then replace them in their rightful positions to enable the rule of the Wise Ones to be re-established.

I really liked this. The character set, though redesigned, is easy to read and the input interpreter is sophisticated though slow. The screen layout is attractive and the graphics are quickly accessed. They are of a fair standard with plenty of detail, and realistic 3D perspective. They really add to the game. The conventional up the screen to go North is reversed, as are East and West, so you have to think, though a screen prompt helps. Lateral movement produces scrolling, whereas N-S movement gives a new illustration.

The programs are documented with a leaflet but there's not a great deal of real help available in them! One major snag: all extra interfaces must be removed or the programs crash.

D M

instructions	80%
ease of use	95%
graphics	100%
value for money	100%

★ ★ ★ ★ ★

Spider-Man
48K Spectrum
£9.95

Adventure International, 85 New Summer St, Birmingham B19 3TE

The second in the series of graphically illustrated adventures in the Questprobe series devised by adventure originator Scott Adams. As with The Hulk the strength of this program lies in its graphics. Although they occupy about a third of the screen only, they are very quickly drawn, and their quality is superb. Just like the Marvel comics from which the characters come.

Along with the tapes comes a mini comic with a story to set the scene together with rather sparse instructions about how to proceed but lots of detail about the strange characters you'll meet along the way. In traditional manner there is a deliberate effort not to provide information — you have to find out for yourself! Even the normal HELP mechanism merely tells you to buy a 'hints' book!

You won't complete this in a hurry. Indeed unless you are a hardened adventure freak you may find it very frustrating getting started. The input interpreter is quite inflexible so getting your instructions across and solving the puzzles is very difficult. Classy but rather priced, recommended for masochists and adventure freaks!

D M

instructions	85%
playability	85%
graphics	100%
value for money	70%

★ ★ ★

Stand up for Spectrum

I feel I must write after reading John Roger's letter in HCW 89 about the Spectrum. Okey it may be rubbish but, let's face it it does have some advantages, few although they may be — BASIC for one. If Sir Clive did something about the function keys I may like it. I too own a TI.

While I'm at it, does anyone know where I can get extended BASIC for less than £69.25?

How about more TI programs please?

A Reader, Burgess Hill

Amstrad advice

Your listing of Darren Matthews' Characters Generator program saved me a bit of work, as I was attempting a program along the same lines, so many thanks.

One thing I didn't know was the address to save from, for the character set, until it was mentioned in the listing. There must be many such addresses and CALLS in the Amstrad ROM but the manual only lists one (CALL&BD19) although CALL &BB00 is in the Basic Pt 1 tape — RESET KEYS.

Would it be possible to publish a complete list of CALL addresses in your magazine and further open the door to this wonderful machine?

By the way, it is possible to unprotect the protected tapes. I've unprotected the whole of the Welcome tape and found much information about programming from the listings in its 'hidden' secrets.

To return to Darren Matthew's Character Generator program. May I make so bold as to suggest a few minor changes to it, to make it even more versatile.

With these changes you can redesign the whole character set, and invent your own italics, Olde English or complete alphabet. I loaded in the character set from Hunter Killer, and found at least six mistakes (the block after the intro message), so it can have varied uses.

1 change the 124 to 32
30 change S=124:C=124 to S=32:C=32
140 make n = 10 to 25
210 insert between Inverse'' and 5 "Z the following 3, "Q/W Alphabet'
New line 505 IF INKEY (67)=0 THEN S=32 GOSUB 1300
New line 506 IF INKEY (59)=0 THEN S=58 GOSUB 1300
650 change < 124 to < 32
680 change variable d to c
690 same thing
New line 705 CLS #4 LOCATE 13,5: PRINT C
720 change variable d to c
1340 change whole line to IF S1 < 100 THEN PRINT " "; S1; CHR$ (S1) ELSE PRINT S1; CHR$ (S1)
New line 1395 INPUT "SPEED WRITE 0 OR 1"; SP
1400 change whole line to SPEED WRITE SP: SAVE F$, 6, 42240, 1792
1440 change to LOAD F$, 42240

I hope this will be of interest.

Allen Gillespie, Bushmills

Amstrad CPC464 users will be pleased to know that we are running a regular programming article starting very shortly. It should give you an insight on your machine and how to take full advantage of it

Case for prosecution

For the first time in my life I really must write to complain about the inaccuracies in your guide (HCW91) concerning the CPC464. Firstly sound: there is no mention of the full envelope control from BASIC, nor is there any mention of the stereo effect possible, or of connections to the outside camp.

Secondly, I/O: you didn't even mention this and gave the impression that none exists. What about parallel, joystick, data bus, sound?

Thirdly, opinion: well, we're all entitled to our opinion, but when it comes to slagging Amstrad off about reliability I must protest. I have never had any problems with my CPC464. Software has never failed to load. I am unaware of what the error message is for this, as I have never seen it.

Fourthly, there was no mention of CP/M possibilities, no mention of available add-ons — disc drives and printers — and there was no mention of the extra languages available, like Pascal, C, Dr Logo.

I also want to complain about the general tone of the whole article. The author clearly favours the 6502 processor. Just go through the article and you will see what are the best thought of micros — BBC B, Electron, CBM 64, CBM 16, Atmos. Surprise, surprise, all five utilise the 6502 or variant.

However the Z80 chip has been confined to that dungeon which shall be locked for all eternity, and where no-one can enter — the business machine. Poo! Surely I am not mistaken when I state that the Z80 is at the heart of that perennial favourite, the ZX Spectrum, surely not a business machine. This is not to mention all the other Z80-based micros — Enterprise, Amstrad etc.

Now I am not nominating myself as a world authority on micros but surely the statement that the CBM 16 is a real Spectrum beater and best value on the market is complete balderdash. What possible value could it have with only 12K max usable. This is laughable!

I am the owner of an Amstrad CPC464 and have nothing but praise for it. All Amstrad owners — get Manic Miner. It's superb on our machine.

Paul Scott, Co Antrim

Software winner

...And defence

Mike Roberts writes: I will take Mr Scott's complaints one by one.

Stereo sound is only available with extra purchases like an amplifier or headphones. The standard machine does not support stereo sound and very few software packages support it either. I only wrote about the standard machines as they come in the box.

No doubt you could make a Spectrum as good as a Commodore 64 if you really tried, spending a few extra hundred pounds on it, but the software would still cater for the standard machine.

Envelope control is not full, at least not as it is implemented on the Beeb, and everything about the machine cannot be compressed into two columns. The same goes for the I/O. I didn't give the impression that none existed — on machines where none exists I have said so, like the Spectrum.

Reliability is a problem with Amstrad computers. Using the tape on its fast setting makes it very difficult to swop software between machines. Commercial software is all right because it is usually a higher quality recording. Even on slow speed some tape decks are incompatible. This is my experience with a number of the machines.

At the time of writing CP/M was not available and we are not in the habit of reviewing promises. We look at the actual goods. Even now the CP/M system is implemented in a non-standard way. It will only run programs designed for the 8080 version of CP/M and is only a 44K system when it's usual for CP/M to have 64K.

The same goes for Pascal, C, and Dr Logo. None were available at the time of writing.

As to preferring the 6502 to the Z80, I am an experienced machine code programmer of many years experience on both chips. So any bias I have is the result of my experience with both processors. How long has Mr Scott been an experienced programmer of both chips, or is he only qualified to give judgement on his favourite — the Z80?

As to 'all the other Z80-based micros' — he lists three, one of which will not be on general sale until after Christmas! While there are 13 micros featured, only three of them are Z80, eight are 6502 or variants, and the odd 6809 or 68008. This is not through any bias on my part, but because there are more home computers with 6502s than any other processor.

As to whether the C16 is a Spectrum beater, this is already being borne out in the shops where it could well be the biggest selling computer this Christmas. Manic Miner is quite good on the Amstrad and I too would recommend it.

The whole feature was written from an unbiased point of view, considering all computers in the same light. Mr Scott is an Amstrad owner and is thus automatically biased in its favour. My review of the Amstrad was checked over by the present editor of Amstrad User for technical accuracy, and pronounced fit. The defence rests.

Act, don't moan

I own a TI 99/4A. I agree with the letter sent in by N Newell (HCW 89). It's not HCW's fault that there are hardly ever any programs for our brilliant computer.

All of you who have ever complained about the amount of programs — have you, yes you, ever sent in a game for the computer? Thank you N Newell for pointing this out to me.

So stop moaning all you TI users and do something about it.

Andrew Chamberlain, Norfolk

Whoops!

Our review of PSI-Q on page 48 of HCW 93 had no credits. In fact the program is published by Mirrorsoft and can be obtained from the company at Holborn Circus, London EC1P 1DQ. Our apologies to Mirrorsoft.

Printer with no name

In HCW 93 we reviewed the Sakata SCP 800 colour plotter printer in our feature Joysticks and Printers. We were unable to give full details of the machine, but this has now been rectified.

The Sakata SCP 800 can be obtained from Datafax, Datafax Hse, Bounty Rd, Basingstoke, Hants RG21 3BZ. Price £199

Send your letters to Letters, Home Computing Weekly, No 1 Golden Square, London W1R 3AB. Don't forget to name your computer — the best letter could win £5 worth of software. Got a problem with your micro? We'll soon be starting a queries page so send your technical questions to Queries at the above address

Daredevil danger

These games put you in some tricky situations but if you've got guts you can survive

Exodus Spectrum £2.50

Firebird, Wellington Hse, Upper St Martin's Lane, London WC2H 9DL

Exodus should get a prize for the most glittering colourful loading screen. It almost jumps out and grabs you by the throat. If left to its own devices, it then goes into a demo mode which gives very concise playing instructions and a demo of the game itself.

The plot is relatively simple but the screen layout is a refreshing change for this invader type game. Your laser base rotates around the periphery of a black hole, from which emerge strange objects from televisions with legs to mutant llamas.

The creatures expand, creating a 3D effect before moving to the edge of the hole and escaping. You must zap them before they effect their escape. However, keep your wits about you, as one of the creatures is your friend, Spud, and in the frenzied activity, zapping Spud loses you a life. In addition, letting any mutant llamas out means instant loss of live.

With good music, good graphics, three black hole types, user definable keys or joystick option, Exodus should keep invader fans, looking for something that little bit different, amused for hours. Well worth the money **M.B**

instructions	95%
graphics	90%
playability	90%
value for money	95%

★ ★ ★ ★ ★

Space Wreck Spectrum £2.95 (4-pack £12.95)

C J Software, Micro Hse, 1 Hill View, Northleach, Cheltenham, Glos

Don't get excited — this is only another BASIC version of Mine field. Reasonably imaginative but slow and difficult — who wants to play a game you can't win? Even if it does have more than one level.

A loading screen blinks, and you are offered levels 1-6 with the suggestion to start at level 1 — followed by your one opportunity to view instructions. You move a tank across a plain to your base, evading and disarming mines with the assistance of a radar screen. Audible warning is given of the presence of any mine in adjoining squares — you must deduce and disarm the mine before fuel or oxygen run out.

Screen top has map showing desert, shrubs, marsh, craters and the base — with 40 hidden mines. Below is the Tank Status Report with how many mines detected, fuel and oxygen levels — starting at 999 — score and options available. Disarm a mine by pressing 'D' and the mine's position in the grid of nine. If you're wrong — demolition and the end of game **T W**

instructions	50%
graphics	50%
playability	55%
value for money	60%

★ ★ ★

Oil Panic / Jet Plane TI-99/4A £4.50

Mark Jameson, 64 Riva Rd, Broadgreen, Liverpool L14 6UE

The first game on this cassette places you in the position of the owner of a hotel in which the boiler in the basement has broken. Unless you can act swiftly, the boiler, fast filling with hot oil, will burst and kill you and all the guests.

Your robot, Mr Fixer, can be used to connect sections of pipeline between the boiler and a nearby safety valve.

The actual circumstances of this scenario do not bear close scrutiny. The floor, for example, is covered in bricks which the robot must avoid, and it mustn't touch the red hot walls or it's the scrapheap for it.

The idea is quite interesting but the effect suffers through poor keyboard control.

The second program, Jet Plane, involves stealing a plane from its hangar and trying to escape with it. Graphics use is minimal and the program is generally poorly implemented.

In both cases the instructions were confined to the display with no written copies, which means that you must write down what you need to know. The programs suffer from spelling mistakes and appear to have been written by a child. **P B**

instructions	80%
graphics	60%
playability	60%
value for money	40%

★ ★

Beamrider Spectrum £7.99

Activision, 15 Harley House, Marylebone Rd, London NW1 5HE

Don't get taken in by the pictures on the package, this isn't as good as it looks. As it's a conversion, I wonder if the screen picture really is taken from a Spectrum?

It's an alien zapper. Imagine a 3D grid coming towards you on the screen. The aliens start at the back and come towards you at break neck speed, hopping from line to line as they do. Your ship, which can be moved across the screen at the 'front' is armed with only three torpedoes, but an unlimited number of lazer blasts.

On the first level it's easy once you've got the hang of it, but as you progress, more and more types of alien appear, and you must avoid the space debris too!

The concept is really good.

The graphics let this down. Not that they're bad, but they're certainly not state of the Spectrum-art, being quite small and prone to flicker. As a result the 3D illusion doesn't quite work.

Very good instructions, but that doesn't explain the price. Some budget games have smoother graphics than this. Rather disappointing. **D M**

instructions	100%
graphics	60%
playability	100%
value for money	50%

★ ★ ★

Viking Raiders Spectrum £2.50

Firebird, Wellington Hse, Upper St Martin's Lane, London WC2H 9DL

I've always fancied being Egbert the Execrable and pillaging and looting. Well, this game indulged my whims.

This graphic war game can be played against up to three opponents, computer or human. Each player has a castle and sizeable hoard of gold with which to buy armies, catapults or boats. Under computer control he can then move them into strategic positions.

Beware — should one of your Vikings bump into a drinking horn, he gets very drunk and you have no control over him. He then staggers where he pleases.

Having digested the rule book, I took on the mantle of Egbert the Execrable and fought the computer, now in the guise of Brunhilda the Bold Welt. I rammed a few ships, catapulted a few well-aimed rocks, had numerous sword fights and got a few Vikings drunk in the process only to find I was no match for Brunhilda, who assaulted my castle and in a sword fight to the finish, defeated me.

The battlefield layout is randomised and therefore each game is unique. Overall, an excellently conceived, absorbing game which required some cerebral activity and is unlikely to be discarded and quickly forgotten. **M R**

instructions	90%
graphics	90%
playability	100%
value for money	100%

★ ★ ★ ★ ★

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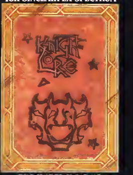
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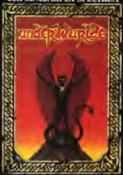
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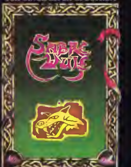

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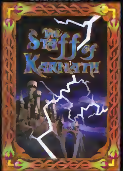
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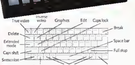

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